Sherwood
NEWCASTLE

OPERATING INSTRUCTIONS
MANUEL D'UTILISATION
BEDIENUNGSANLEITUNG

R-772

Audio/Video Receiver

CE

Introduction

ENGLISH

READ THIS BEFORE OPERATING YOUR UNIT

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

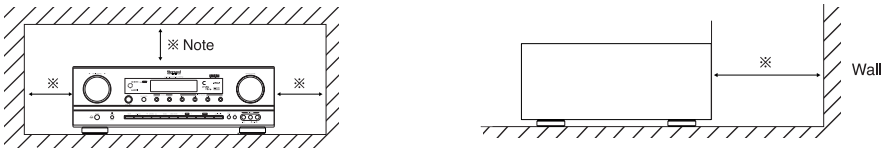
CAUTION : TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

	This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.
	This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING : TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

Caution regarding installation

Note : For heat dispersal, do not install this unit in a confined space such as a bookcase or similar enclosure.



Do not block ventilation openings or stack other equipment on the top.

FOR YOUR SAFETY

EUROPE AUSTRALIA	**220 V - 240 V**	Units shipped to Australia are designed for operation on 240 V AC only. To ensure safe operation, the three-pin plug supplied must be inserted only into a standard three-pin power point which is effectively earthed through the normal household wiring. Extension cords used with the equipment must be three-core and be correctly wired to provide connection to earth. Improper extension cords are a major cause of fatalities. The fact that the equipment operates satisfactorily does not imply that the power point is earthed and that the installation is completely safe. For your safety, if in any doubt about the effective earthing of the power point, consult a qualified electrician. PAN-EUROPEAN UNIFIED VOLTAGE All units are suitable for use on supplies 220-240 V AC.

CAUTION

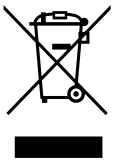
- Leave a space around the unit for sufficient ventilation.
- Avoid installation in extremely hot or cold locations, or in an area that is exposed to direct sunlight or heating equipment.
- Keep the unit free from moisture, water, and dust.
- Do not let foreign objects in the unit.
- The ventilation should not be impeded by covering the ventilation openings with items, such as newspapers, table-cloths, curtains, etc.
- No naked flame sources, such as lighted candles, should be placed on the unit.
- Please be care the environmental aspects of battery disposal.
- The unit shall not be exposed to dripping or splashing for use.
- No objects filled with liquids, such as vases, shall be placed on the unit.
- Do not let insecticides, benzene, and thinner come in contact with the set.
- Never disassemble or modify the unit in any way.

■ Notes on the AC power cord and the wall outlet.

- The unit is not disconnected from the AC power source(mains) as long as it is connected to the wall outlet, even if the unit has been turned off.
- To completely disconnect this product from the mains, disconnect the plug from the wall socket outlet.
- When setting up this product, make sure that the AC outlet you are using is easily acceptable.
- Disconnect the plug from the wall outlet when not using the unit for long periods of time.

Note on recycling

This product's packaging materials are recyclable and can be reused. Please dispose of any materials in accordance with the local recycling regulations.
When discarding the unit, comply with local rules or regulations.
Batteries should never be thrown away or incinerated but disposed of in accordance with the local regulations concerning chemical waste.
This product and the accessories packed together constitute the applicable product according to the WEEE directive except batteries.



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CONTENTS

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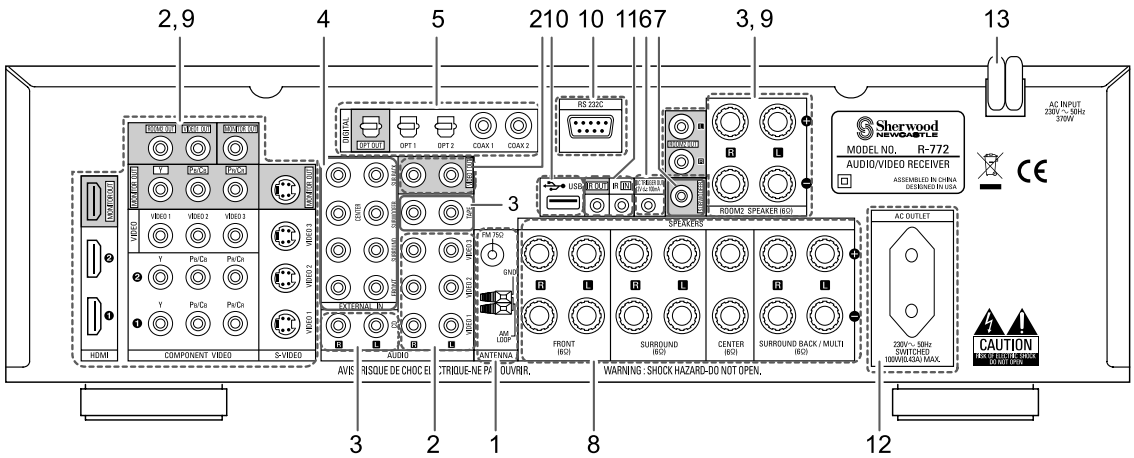
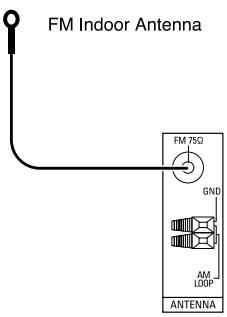
System Connections

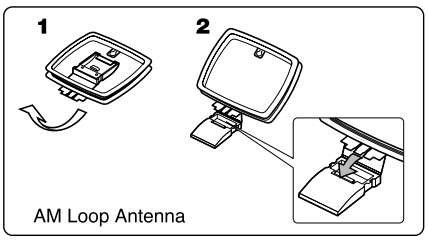
- Please be certain that this unit is unplugged from the AC outlet before making any connections.
- Since different components often have different terminal names, carefully read the operating instructions of the component connected.
- Be sure to observe the color coding when connecting audio, video and speaker cords.
- Make connections firmly and correctly. If not, it can cause loss of sound, noise or damage to the receiver.



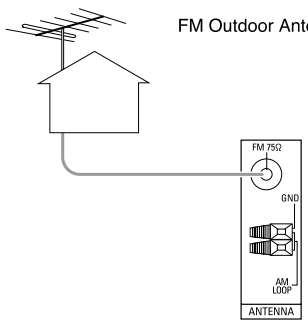
1. CONNECTING ANTENNAS



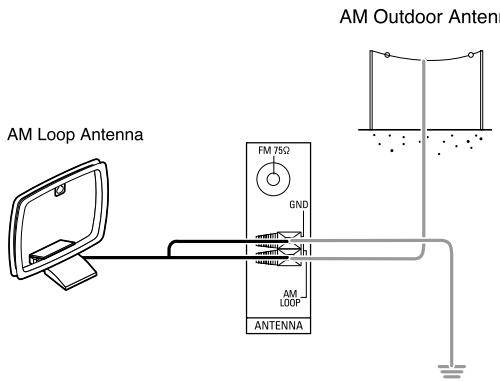
- Change the position of the FM indoor antenna until you get the best reception of your favorite FM stations.



- Place the AM loop antenna as far as possible from the receiver, TV set, speaker cords and the AC input cord and set it to a direction for the best reception.
- If the reception is poor with the AM loop antenna, an AM outdoor antenna can be used in place of the AM loop antenna.

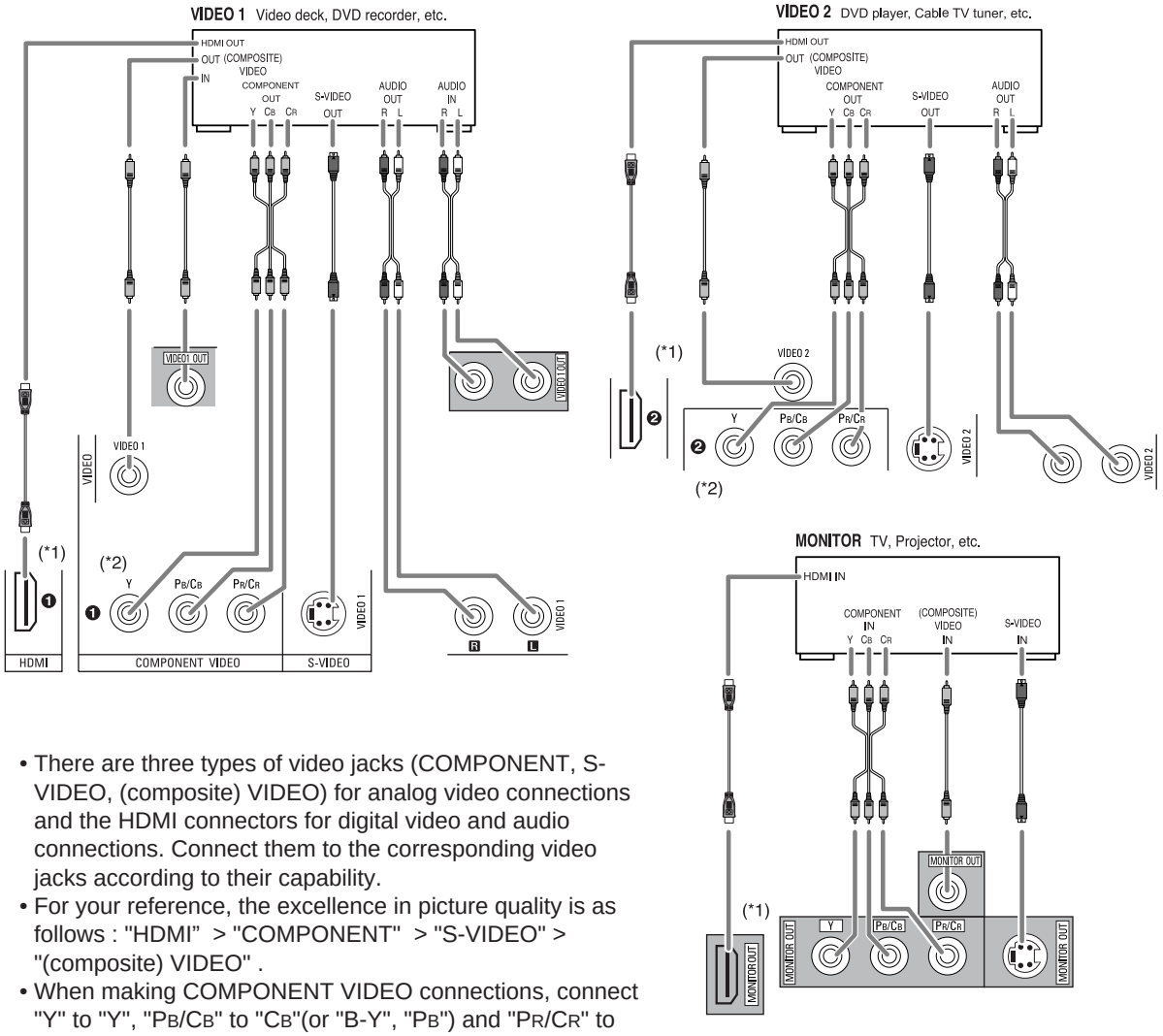


- A 75Ω outdoor FM antenna may be used to further improve the reception. Disconnect the indoor antenna before replacing it with the outdoor one.



2. CONNECTING VIDEO COMPONENTS

- The jacks of VIDEO 1 may also be connected to a DVD recorder or other digital video recording component.
  For details, refer to the operating instructions of the component to be connected.
- The jacks of VIDEO 2/VIDEO 3 can also be connected to an additional video component such as a cable TV tuner or satellite system.
- Connect the jacks of VIDEO 3 to the video component in the same way.



- There are three types of video jacks (COMPONENT, S-VIDEO, (composite) VIDEO) for analog video connections and the HDMI connectors for digital video and audio connections. Connect them to the corresponding video jacks according to their capability.
- For your reference, the excellence in picture quality is as follows : "HDMI" > "COMPONENT" > "S-VIDEO" > "(composite) VIDEO" .
- When making COMPONENT VIDEO connections, connect "Y" to "Y", "P_B/C_B" to "C_B"(or "B-Y", "P_B") and "P_R/C_R" to "C_R"(or "R-Y", "P_R").
- When recording video program sources through VIDEO 1 OUT jacks or viewing ROOM 2 source through ROOM 2 OUT jacks, you must connect the (composite) VIDEO IN jacks to video playback components such as DVD player, cable TV tuner, etc.
- This unit is equipped with a function that up-converts composite video signals to S-Video signals or down-converts S-Video signals to composite video signals and outputs them from the MONITOR OUTs.
- After connecting the video components, you should set the video mode correctly, referring to the following table on page 6. (For details, refer to "When selecting the VIDEO MODE" on page 45.)

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Continued

■Relationship between the video input signal and the video output signal

Video input signals			Video Mode	MONITOR OUTs		
COMPONENT	S-VIDEO	(COMPOSITE) VIDEO	Setting	COMPONENT*1	S-VIDEO	(COMPOSITE) VIDEO
○	○	○	Auto	Component	S-Video	Composite video*2
			Component	Component	×	×
			S-Video	×	S-Video	S-Video
			Composite	×	Composite video	Composite video
○	○	×	Auto	Component	S-Video	S-Video
○	×	○	Auto	Component	Composite video	Composite video
○	×	×	Auto	Component	×	×
×	○	○	Auto	×	S-Video	Composite video*2
×	○	×	Auto	×	S-Video	S-Video
×	×	○	Auto	×	Composite video	Composite video

*1 : Component video signal can be output from the COMPONENT MONITOR OUT jacks only.
*2 : The OSD menu and the momentary OSD cannot be displayed via (COMPOSITE) VIDEO MONITOR OUT jack.

■Note :
• The OSD menu and the momentary OSD cannot be displayed via the COMPONENT MONITOR OUT and the HDMI MONITOR OUT jacks.

■HDMI (High Definition Multimedia Interface) connection : (*1)
• You can connect the source component (DVD player, etc.) to the display component (TV, projector, etc.) through this receiver with using a commercially available HDMI cord.
• The HDMI connection can carry uncompressed digital video signals and digital audio signals.
• The HDMI video stream signals (video signals) are theoretically compatible with DVI-D. When connecting to a TV monitor, etc., equipped with DVI-D connector, it is possible to connect using a commercially available HDMI-DVI converter cord. Since the HDMI-to-DVI connection cannot carry any audio signals, you should make audio connections to play the audio signals on the component equipped with DVI-D connector. (For details, refer to the operating instructions of its.)
• If you connect the HDMI INs to your video components, it is easier to do so following the default settings.
• If your HDMI connection is different from the default setting, you should assign the HDMI INs you used with the "When selecting the HDMI ASSIGN" procedure on page 45.
• The default settings are as follows :
HDMI 1 : VIDEO 1, HDMI 2 : VIDEO 2

■Copyright protection system
• This unit supports HDCP (High-bandwidth Digital Contents Protection), technology to protect copyright of digital video signals against illegal duplication. HDCP must also be supported on the components connected to this unit.
• This unit is HDMI Ver. 1.3 compatible.
• HDMI, the HDMI logo and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI licensing LLC.

■Notes :
• For stable signal transfer, we recommend using HDMI cords that are a maximum of 5 meters in length.
• Among the components that support HDMI, some components can control other components via the HDMI connector. However, this unit cannot be controlled by another component via the HDMI connector.
• The audio signals from the HDMI connector (including the sampling frequency and bit length) may be limited by the component that is connected.
• The video signals will not be output properly if a component incompatible with HDCP is connected.
• If the resolutions of the video signals which are output from the HDMI MONITOR OUT and your monitor TV are not matched, the picture is not clear, natural or displayed. In this case, change the setting of the resolution on the source component (DVD player, etc.) to one which the monitor TV can handle. (For details, refer to the operating instructions of the source component.)
• When you want to enjoy only the picture on your TV, not the sound, you should set the HDMI AUDIO OUT to OFF not to output the digital audio signal from the HDMI MONITOR OUT of this receiver. (For details, refer to "When selecting the HDMI AUDIO OUT" on page 41.)

■Component video input default settings: (*2)
• If you connect the COMPONENT VIDEO INs to your video components, it is easier to do so following the default settings.
• If your component video connections are different from the default setting, you should assign the COMPONENT VIDEO INs you used with the “When selecting the VIDEO ASSIGN” procedure on page 45.
• The default settings are as follows:
COMPONENT IN 1 : VIDEO 1, COMPONENT IN 2 : VIDEO 2.

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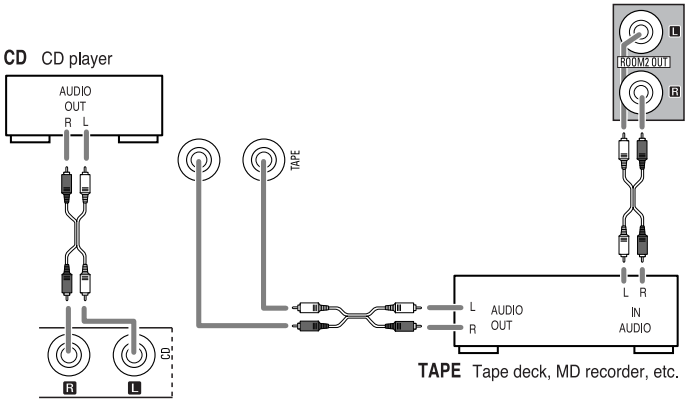
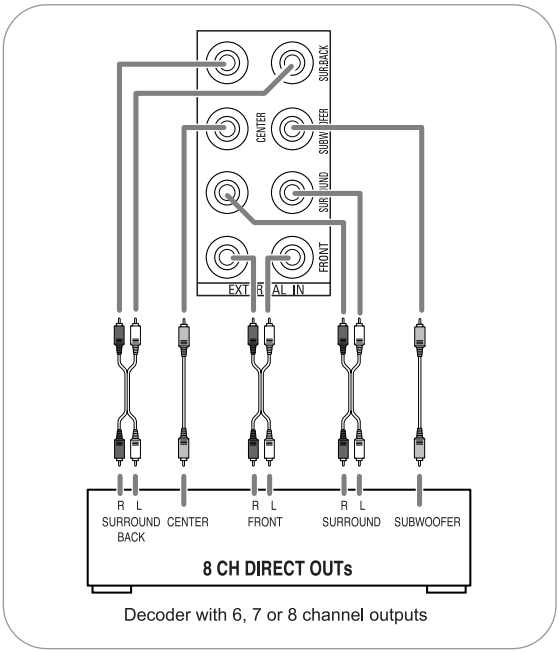
3. CONNECTING AUDIO COMPONENTS

• For analog audio recording, the ROOM 2 OUT jacks can be connected to audio recording equipment such as a tape deck, an MD recorder, etc. as shown beside.



4. CONNECTING EXTERNAL INS

• Use these jacks to connect the corresponding outputs of a DVD player or external decorder, etc. that has 6, 7 or 8 channel analog audio outputs.
• In case of 6 or 7 channel outputs, do not connect both of the SURROUND BACK L and R inputs or the SURROUND BACK R input of this unit. (For details, refer to the operating instructions of the component to be connected.)



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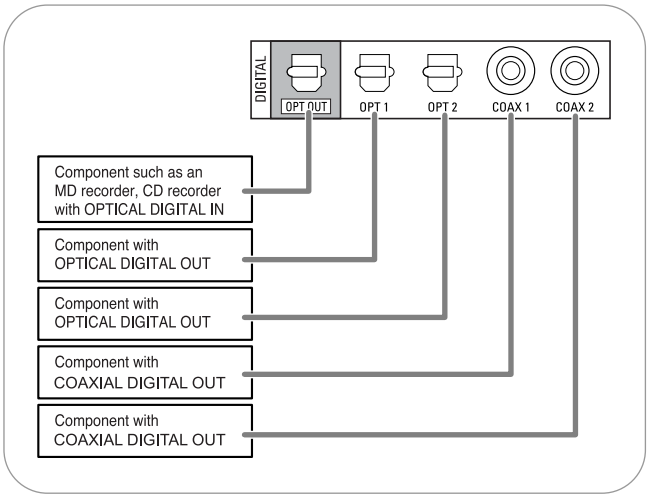
5. CONNECTING DIGITAL INS AND OUT



- The OPTICAL and the COAXIAL DIGITAL OUTs of the components that are connected to this unit can be connected to these DIGITAL INs.
- A digital input should be connected to the components such as a CD player, DVD player, etc. capable of outputting DTS Digital Surround, Dolby Digital or PCM format digital signals, etc.
- If the component with OPTICAL IN jack is connected to the OPTICAL OUT jack of this unit, you can record the high quality sound of CDs, etc. without degradation.
- For details, refer to the operating instructions of the component connected.
- When making the COAXIAL DIGITAL connection, be sure to use a 75 Ω COAXIAL cord, not a conventional AUDIO cord.
- All of the commercially available optical fiber cords cannot be used for the equipment. If there is an optical fiber cord which cannot be connected to your equipment, consult your dealer or nearest service organization.

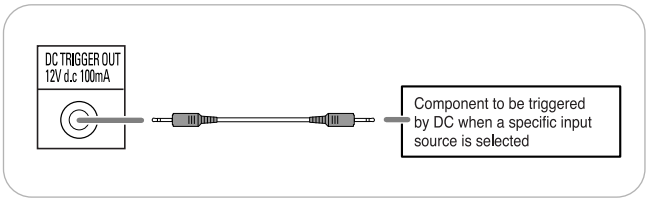
■Notes:

- Be sure to make either a OPTICAL or a COAXIAL DIGITAL connection on each component. (You don't need to do both.)
- Depending on the digital audio signal format input into HDMI IN connector, some digital signals cannot be output from the OPTICAL OUT jack.

■Digital input default settings

- If you connect the DIGITAL INs to your components, it is easier to do so following the default settings.
- If your DIGITAL connections are different from default settings, you should assign the DIGITAL INs you used with the "When selecting the AUDIO ASSIGN" procedure on page 45.
- The default settings are as follows :
  OPTICAL IN 1 : VIDEO 1, OPTICAL IN 2 : VIDEO 2, COAXIAL IN 1 : CD, COAXIAL IN 2 : AUX.

6. CONNECTING DC TRIGGER OUT



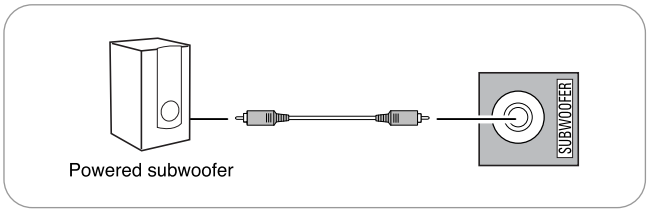
- Connect a component to DC TRIGGER OUT jack that allows DC 12V to turn on when a specific input source is selected.
- For details, refer to the operating instructions of the components to be connected.
- To link DC TRIGGER OUT with a specific input source, refer to "When selecting the DC TRIGGER" on page 46.

■Note:

- This output voltage (12V d.c., 100mA) is for (status) control only, it is not sufficient for drive capability.
- When making DC TRIGGER connection, you should use the stereo mini cord, not a mono mini cord.

7. CONNECTING SUBWOOFER PREOUT

- To emphasize the deep bass sounds, connect a powered subwoofer.



8. CONNECTING SPEAKERS

- Be sure to connect speakers firmly and correctly according to the channel(left and right) and the polarity (+ and -). If the connections are faulty, no sound will be heard from the speakers, and if the polarity of the speaker connection is incorrect, the sound will be unnatural and lack bass.
- For installing the speakers, refer to “Speaker placement” on page 10.
- After installing the speakers, first adjust the speaker settings according to your environment and speaker layout. (For details, refer to “SETTING THE SPEAKER/ROOM EQ SETUP” on page 48.)

■Surround back speakers

- When using only one surround back speaker, you should connect it to SURROUND BACK/MULTI LEFT channel.
- Because this receiver cannot drive the surround back speakers and the ROOM 2 speakers simultaneously, you should assign their power amplifier correctly depending on how to use them. (For details, refer to “CONNECTING ROOM 2 OUTS” on page 11 and “When selecting the AMP ASSIGN” on page 40.)

■Front Bi-Amp Connections.

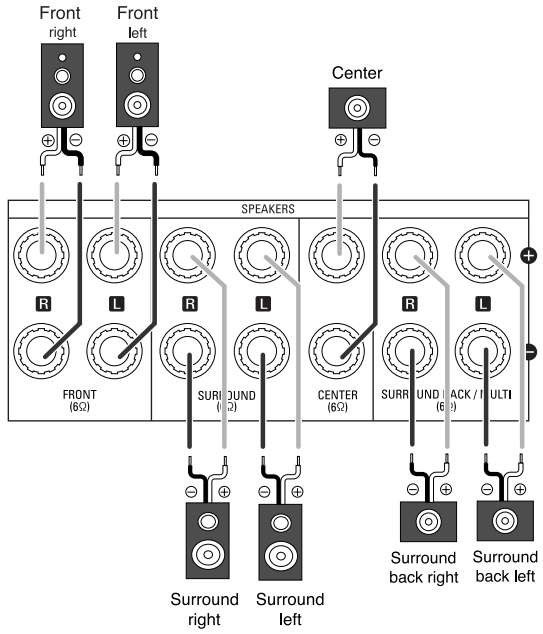
- Some speakers are equipped with two sets of input terminals, for bi-amplification.
- If no other surround back speakers are used, you can connect the FRONT and the SURROUND BACK /MULTI channels to the bi-amp-capable speakers. (For details, refer to the operating instructions of your bi-amp-capable speakers.)
- To drive the bi-amp-capable speakers, you should assign the power amplifier to "BI-AMP".

■Note :

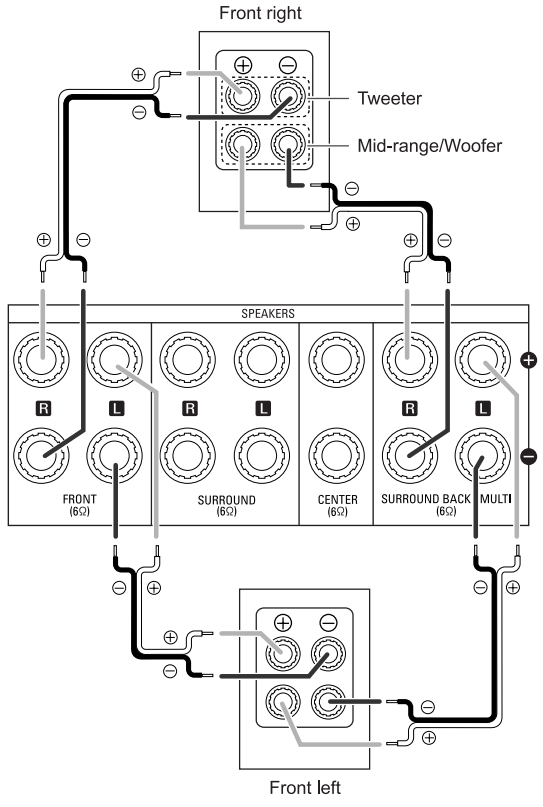
- Before making bi-amp connections, remove the short-circuiting bars from the terminals of your speakers.

Caution :

- Be sure to use the speakers with the impedance of 6 ohms or above.
- Do not let the bare speaker wires touch each other or any metal part of this unit. This could damage this unit and/or the speakers.



■ Front-Bi-Amp Connections



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Speaker placement

Ideal speaker placement varies depending on the size of your room and the wall coverings, etc. The typical example of speaker placement and recommendations are as follows :

■ Front left and right speakers and center speaker

- Place the front speakers with their front surfaces as flush with TV or monitor screen as possible.
- Place the center speaker between the front left and right speakers and no further from the listening position than the front speakers.
- Place each speaker so that sound is aimed at the location of the listener's ears when at the main listening position.

■ Surround left and right speakers

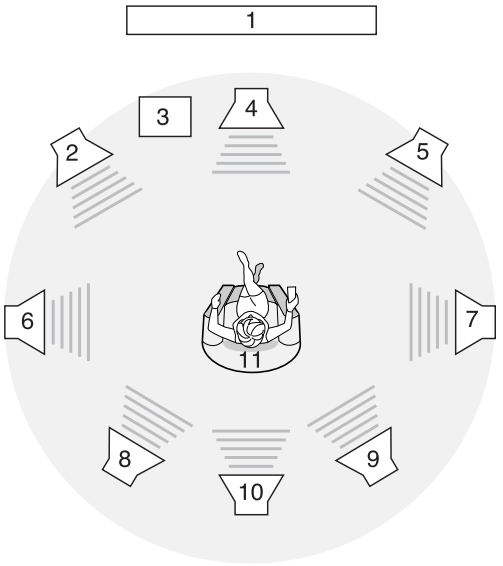
- Place the surround speakers approximately 1 meter (40 inches) above the ear level of a seated listener on the direct left and right of them or slightly behind.

■ Surround back left and right speakers

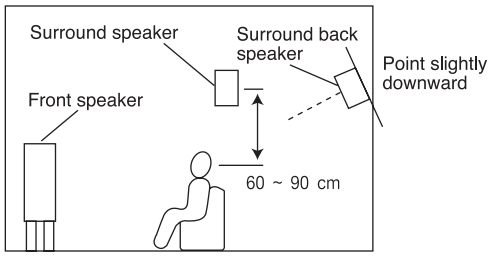
- Place the surround back speakers at the back facing the front at a narrower distance than front speakers.
- When using a single surround back speaker, place it at the rear center facing the front at a slightly higher position (0 to 20 cm) than the surround speakers.
- We recommend installing the surround back speaker(s) at a slightly downward facing angle. This effectively prevents the surround back channel signals from reflecting off the TV or screen at the front center, resulting in interference and making the sense of movement from the front to the back less sharp.

■ Subwoofer

- The subwoofer reproduces powerful deep bass sounds.
  Place a subwoofer anywhere in the front as desired.



1. TV or Screen
2. Front left speaker
3. Subwoofer
4. Center speaker
5. Front right speaker
6. Surround left speaker
7. Surround right speaker
8. Surround back left speaker
9. Surround back right speaker
10. Surround center speaker
11. Listening position



■ Notes :

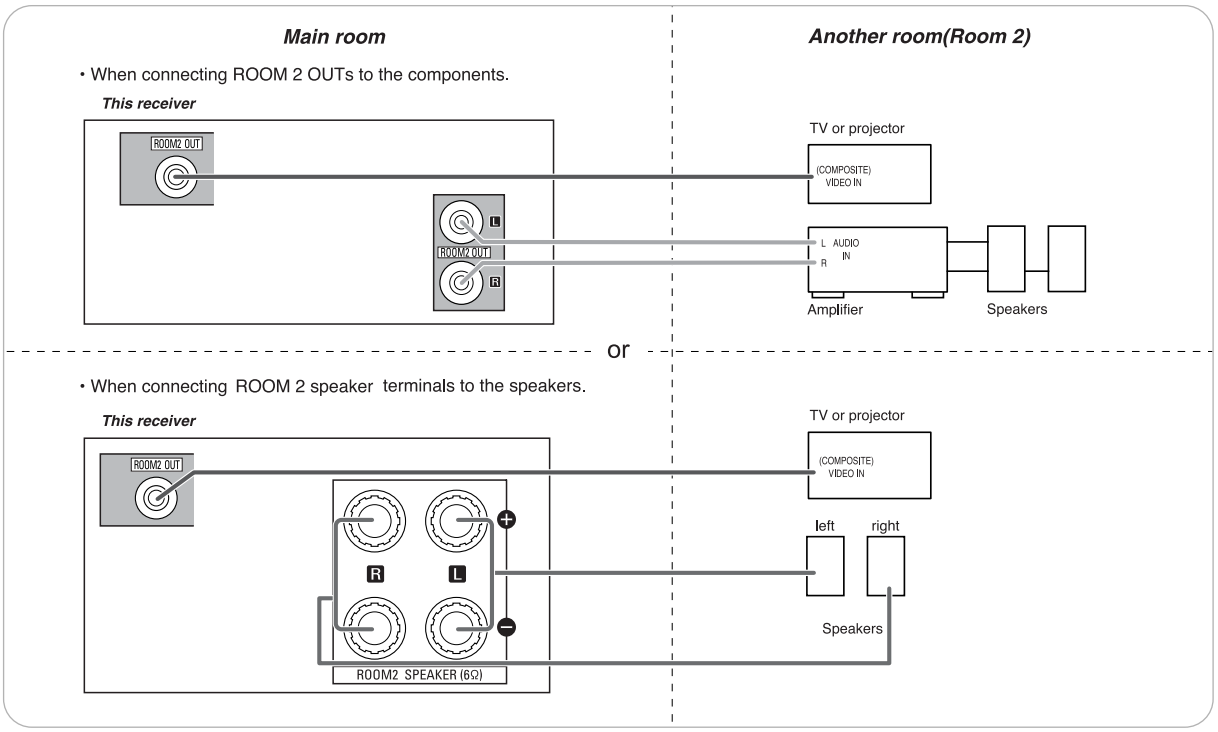
- When using a conventional TV, to avoid interference with the TV picture, use only magnetically shielded front left and right and center speakers.
- To obtain the best surround effects, the speakers except the subwoofer should be full range speakers.

9. CONNECTING ROOM 2 OUTS

- ROOM 2 playback feature allows you to play a different program source in another room as well as one source in the main room at the same time.
- For ROOM 2 playback, connect the ROOM 2 OUT jacks to the amplifier, TV, etc. installed in another room, or connect the ROOM 2 speaker terminals to the speakers.
- Because this receiver cannot drive the surround back speakers and the ROOM 2 speakers simultaneously, you should assign their power amplifier correctly depending on how to use them. (For details, refer to "When selecting the AMP ASSIGN" on page 40.)
- When the ROOM 2 (AUDIO) OUT jacks are not connected to the ROOM 2 amplifier, you can connect these jacks to audio recording equipment such as a tape deck, an MD recorder, etc. for analog audio recording. (For details, refer to "CONNECTING AUDIO COMPONENTS" on page 7.)

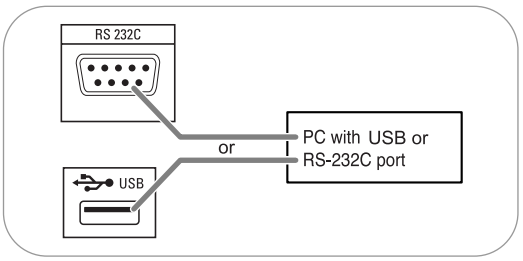
■**Notes :**

- To minimize hum or noise, use high quality connection cords.
- You cannot use the digital audio signal for ROOM 2 playback.



10. CONNECTING PC FOR UPGRADES

- This receiver incorporates USB as well as RS-232C terminal that may be used in the future to update the operating software so that it will be able to support new digital audio formats, external control by using an external device and the like.
- Connect either USB or RS-232C terminal to your PC (you don't need to do both).



■**Notes:**

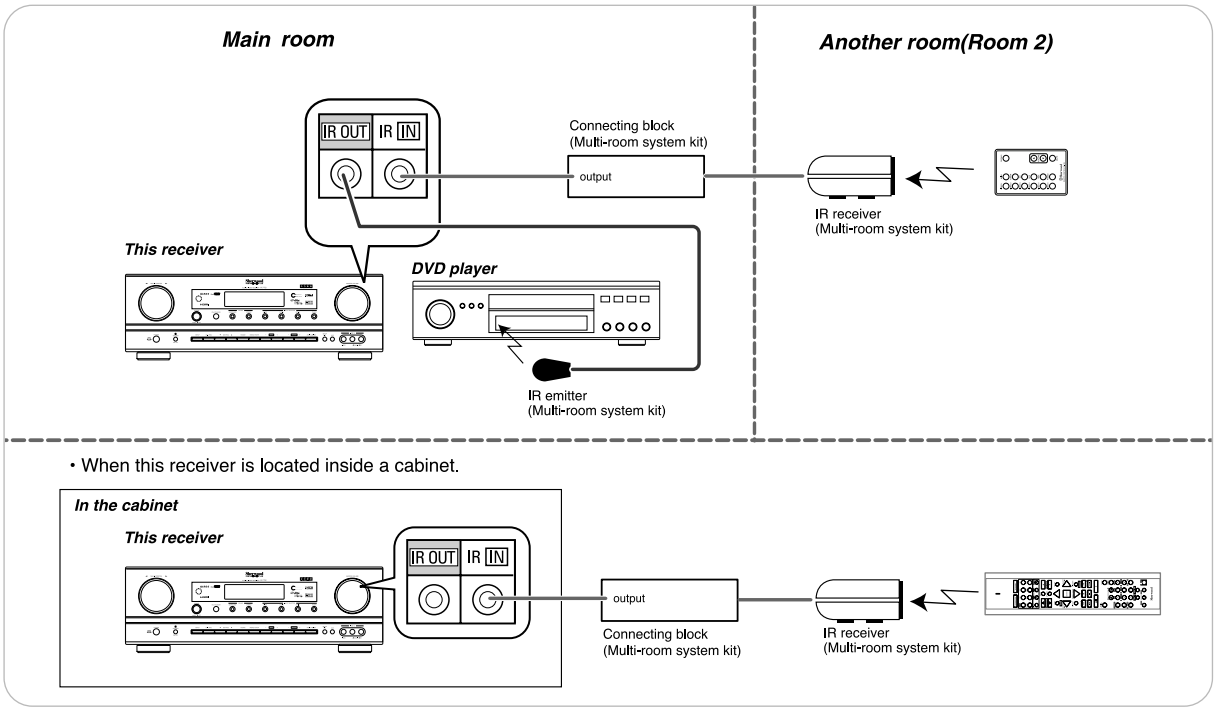
- Programming for upgrades and external control requires specialized programming knowledge and for that reason we recommend that it only be done by qualified installers. For more information on future upgrades and external control, visit the Sherwood web site at www.sherwoodamerica.com or contact your dealer.
- Do not disconnect the connection cable while updating the operating software, etc. Should this happen, it may be result in malfunction or cause damage to the unit.

11. CONNECTING MULTI-ROOM SYSTEM KIT

- The multi-room system kit(sold separately) is essential for operation from a remote location . For information on the multi-room system kit, contact the Xantech corporation at 1-800-843-5465 or www.xantech.com.
- IR IN jack allows you to control this receiver from another room with the remote control unit.
- To control this receiver from another room with the remote control unit, connect the IR IN jack to the output of the connecting block.
- If this receiver is located inside a cabinet or other enclosure where the infrared beams from the remote control unit cannot enter, then operation with the remote control unit will not be possible. In such a case, connect the IR IN jack to the output of the connecting block.
- To control other compatible component from another room with the universal remote control unit, connect the IR OUT jack to the IR emitter.

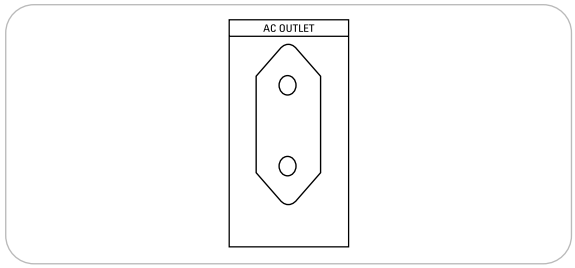
■ **Note:**

- Remote operation may become unreliable if the IR receiver is exposed to strong light such as direct sunlight or inverted fluorescent.



12. SWITCHED AC OUTLET

- This outlet is switched on (power-on mode) and off (standby mode) according to power control as follows (Maximum total capacity is 100 W (0.43A)).
  - Standby mode - Switched AC outlet off
  - Power - on mode - Switched AC outlet on



13. AC INPUT CORD

- Plug this cord into a wall AC outlet.

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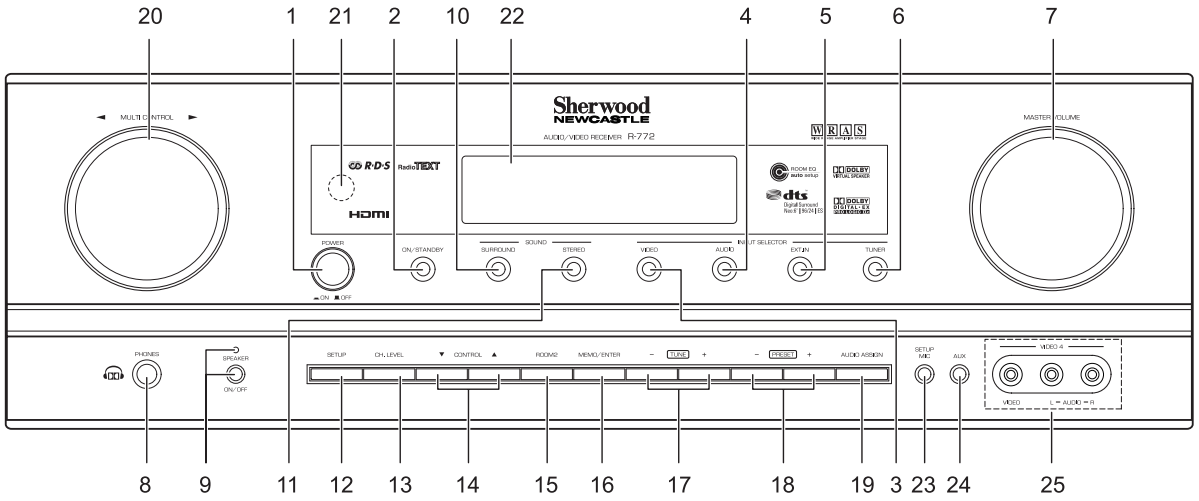
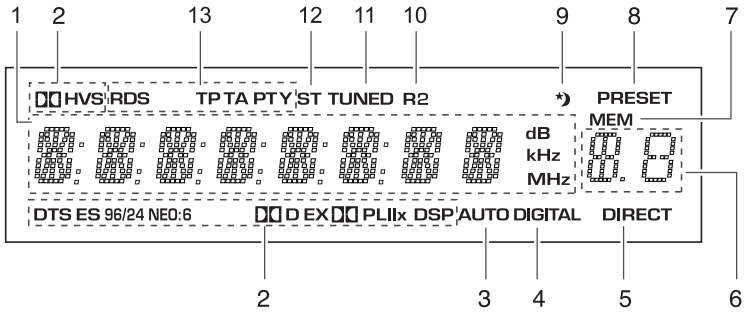
Front Panel Controls



1. POWER switch
2. POWER ON/STANDBY button/indicator
3. VIDEO INPUT SELECTOR button
4. AUDIO INPUT SELECTOR button
5. EXTERNAL IN button
6. TUNER button
7. MASTER VOLUME CONTROL knob
8. HEADPHONE jack
9. SPEAKER button/indicator
10. SURROUND MODE button
11. STEREO button
12. SETUP button
13. CHANNEL LEVEL button
14. CONTROL UP/DOWN (▲/▼) buttons
15. ROOM 2 button
16. MEMORY/ENTER button
17. TUNING UP/DOWN(+/-) buttons
18. PRESET UP/DOWN(+/-) buttons
19. AUDIO ASSIGN button
20. MULTI CONTROL knob
21. REMOTE SENSOR
22. FLUORESCENT DISPLAY
    For details, see below.
23. SETUP MIC jack
    For details, see next page.
24. AUX IN jack
    For details, see next page.
25. VIDEO 4 IN jacks
    For details, see next page.

■FLUORESCENT DISPLAY



1. Input, frequency, volume level, operating information, etc.
2. Surround mode indicators
3. AUTO indicator
4. DIGITAL INPUT indicator
5. DIRECT indicator
6. Preset number, sleep time display
7. MEMORY indicator
8. PRESET indicator
9. SLEEP indicator
10. ROOM 2 indicator
11. TUNED indicator
12. STEREO indicator
13. RDS indicators
    (Regional option for Europe, etc.)

ENGLISH

■SETUP MIC JACK

• To use Auto Setup function, connect the supplied microphone to the SETUP MIC jack.(For details, refer to "When selecting the AUTO SETUP" on page 48.)

■ **Notes:**

• Because the microphone for Auto Setup is designed for use with this receiver, do not use a microphone other than the one supplied with this receiver.

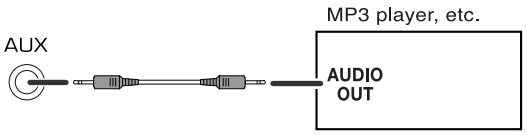
• After you have completed the auto setup procedure, disconnect the microphone.

■AUX IN JACK

• The AUX IN jack can be connected to an additional audio component such as an MP3 player, etc.

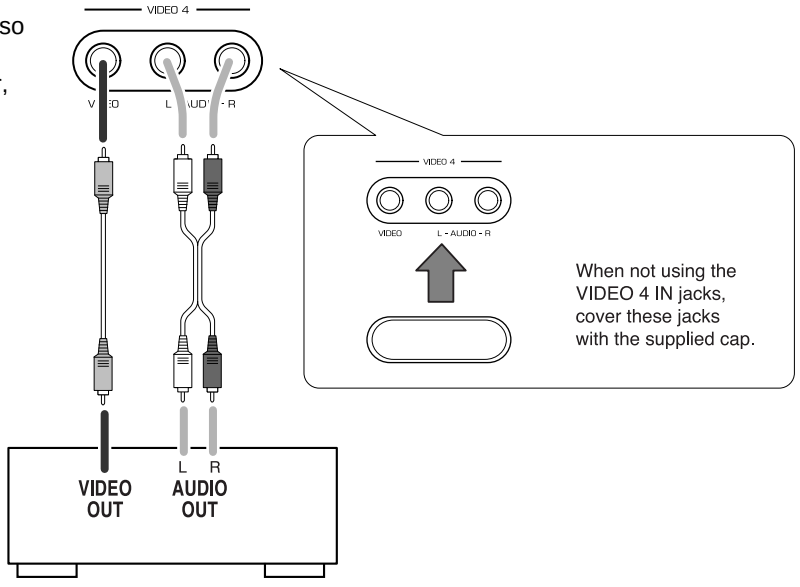
■ **Note :**

• When connecting this jack to an MP3 player, etc., you should use the stereo mini cord, not a mono mini cord.



■VIDEO 4 IN JACKS

• The VIDEO 4 IN jacks may be also connected to an additional video component such as a camcorder, a video game player, etc.



VIDEO 4 Camcorder, video game player, etc.

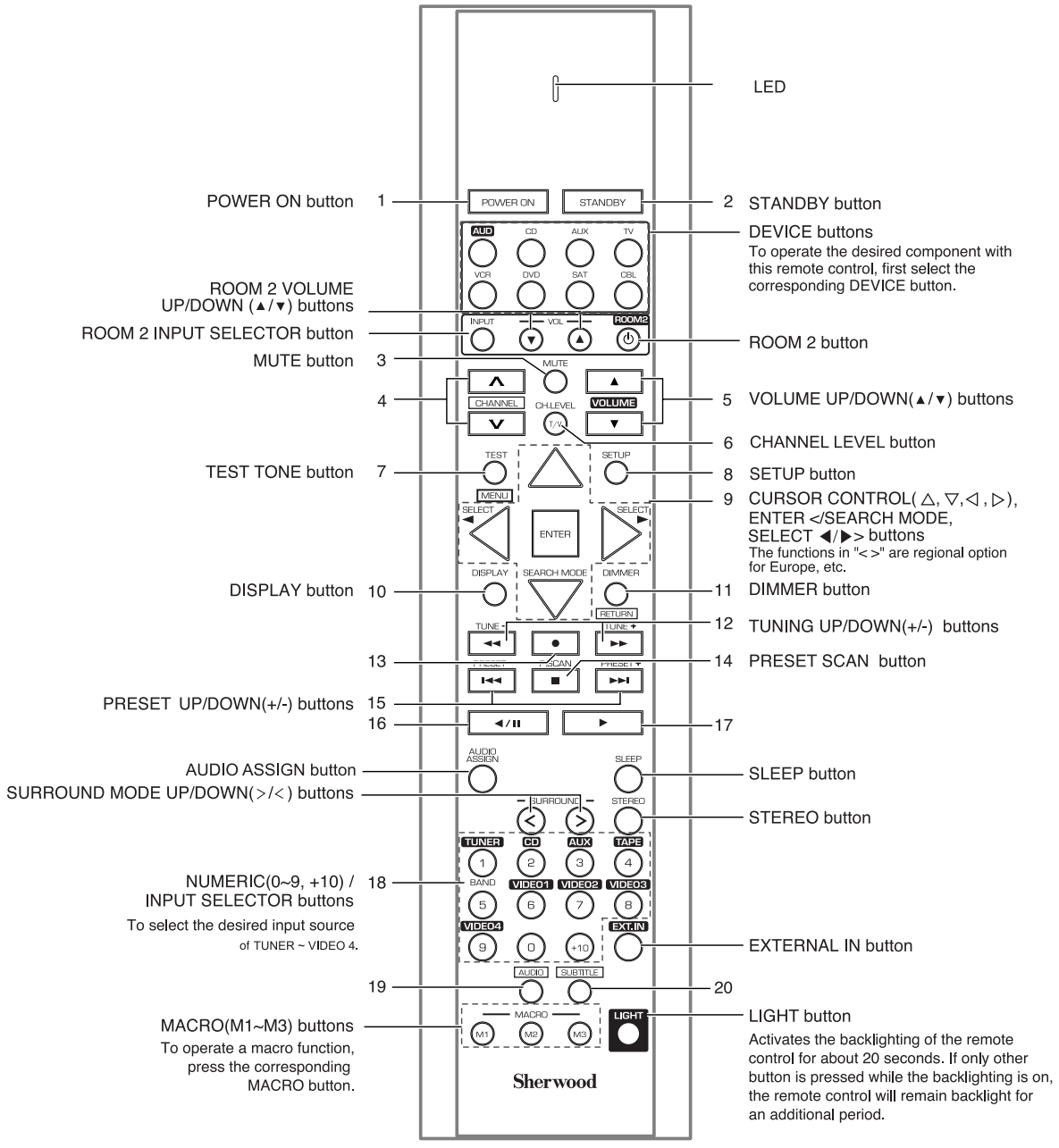
Universal Remote Controls

This universal remote control can operate not only this receiver but also most popular brands of audio and video components such as CD players, tape decks, TVs, cable boxes, VCRs, DVD players, satellite receivers, etc.

- To operate 7 components other than this receiver , you should enter the setup code for each component. (For details, refer to “USING FUNCTIONS OF REMOTE CONTROL” on page 18.)
- The numbered buttons on the remote control have different functions in different device modes. For details, refer to "FUNCTION TABLE of the NUMBERED BUTTONS" on the next page.

■Note :

- In such a case that some components do not have the REMOTE SENSOR which receives the remote signals, this remote control cannot operate them.



ENGLISH

■FUNCTION TABLE of the NUMBERED BUTTONS.

Button symbol \ Device to be controlled	CD (for CD player)	AUX (for tape deck)	TV (for TV)	VCR (for VCR)	DVD (for DVD player)	SAT (for satellite receiver)	CBL (for cable box)
1 POWER ON	POWER ON	POWER ON	POWER ON	POWER ON	POWER ON	POWER ON	POWER ON
2 STANDBY	STANDBY (POWER OFF)	STANDBY (POWER OFF)	STANDBY (POWER OFF)	STANDBY (POWER OFF)	STANDBY (POWER OFF)	STANDBY (POWER OFF)	STANDBY (POWER OFF)
3 MUTE	—	—	MUTE	MUTE	—	MUTE	MUTE
4 CHANNEL ∧ / ∨	—	—	CHANNEL UP/DOWN(∧/∨)	CHANNEL UP/DOWN(∧/∨)	—	CHANNEL UP/DOWN(∧/∨)	CHANNEL UP/DOWN(∧/∨)
5 VOLUME ▲ / ▼	—	—	VOLUME UP/DOWN(▲/▼)	VOLUME UP/DOWN(▲/▼)	—	VOLUME UP/DOWN(▲/▼)	VOLUME UP/DOWN(▲/▼)
6 CH.LEVEL T/V	—	—	INPUT SELECTOR	INPUT SELECTOR	—	INPUT SELECTOR	INPUT SELECTOR
7 TEST / MENU	—	—	—	—	MENU	—	—
8 SETUP	—	—	—	—	SETUP	—	—
9 △▽◁▷ / ENTER	—	—	—	—	CURSOR CONTROL / ENTER	—	—
10 DISPLAY	—	—	—	—	DISPLAY	—	—
11 DIMMER / RETURN	—	—	—	—	RETURN	—	—
12 TUNE− ◄◄ / TUNE+ ►►	REVERSE SEARCH(◄◄) / FORWARD SEARCH(►►)	REWIND(◄◄) / FAST FORWARD(►►)	—	REWIND(◄◄) / FAST FORWARD(►►)	REVERSE SEARCH(◄◄) / FORWARD SEARCH(►►)	—	—
13 ●	—	RECORD	—	RECORD	—	—	—
14 P.SCAN ■	STOP	STOP	—	STOP	STOP	—	—
15 PRESET− I◄◄ / PRESET+ ►►I	REVERSE SKIP(I◄◄) / FORWARD SKIP(►►I)	—	—	—	REVERSE SKIP(I◄◄) / FORWARD SKIP(►►I)	—	—
16 ◄/II	PAUSE	REVERSE PLAY	—	PAUSE	PAUSE	—	—
17 ►	PLAY	FORWARD PLAY	—	PLAY	PLAY	—	—
18 VIDEO A 0 ~ 9, +10	NUMERIC	—	NUMERIC	NUMERIC	NUMERIC	NUMERIC	NUMERIC
19 AUDIO	—	—	—	—	AUDIO	—	—
20 SUBTITLE	—	—	—	—	SUBTITLE	—	—

■Notes :

- Some functions for each component may not be available or may work differently.
- Depending on other kinds of components that are available for each DEVICE button, some functions may not be available or may work differently, too.
- For details about functions, refer to the operating instructions of each component.

OPERATING COMPONENTS WITH REMOTE CONTROL

1. Enter the setup code for each component other than this receiver. For detalis, refer to “Entering a setup code” on page 18.

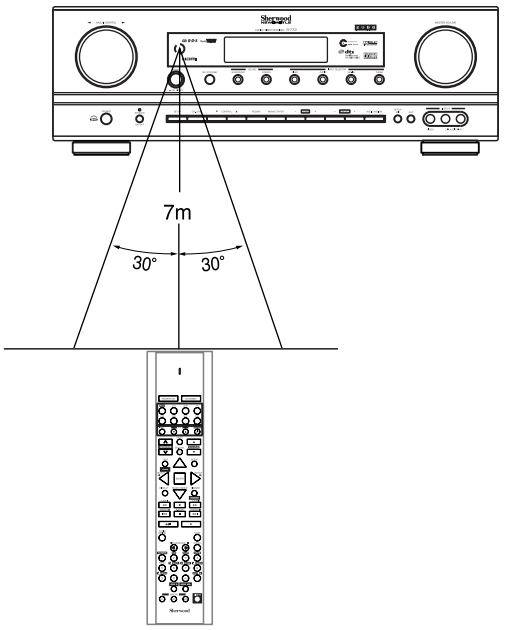
2. Turn on the component you want to operate.

3. Press the DEVICE button on the remote control corresponding to the component you wish to operate.

4. Aim the remote control at the REMOTE SENSOR of the component you wish to control and press the button corresponding to the operation you want.

REMOTE CONTROL OPERATION RANGE

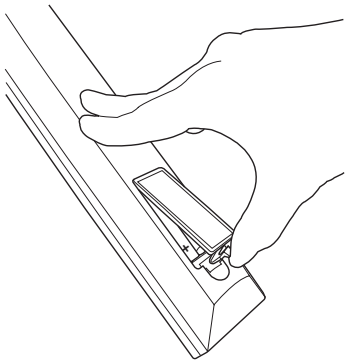
• Use the remote control within a range of about 7 meters (23 feet) and angles of up to 30 degrees aiming at the remote sensor.



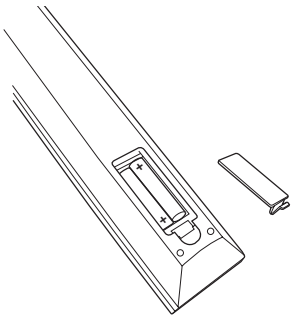
LOADING BATTERIES

• When the remote control does not operate, the old batteries should be replaced. In this case, load new batteries within several minutes after removing old batteries.
• If the betteries are removed or have been exhausted for a longer period of time, memorized contents will be cleared. Should this happen, you should memorize them again.

1. Remove the cover.



2. Load two batteries (“AAA” size) matching the polarity.



• Remove the batteries when they are not used for a long time.
• Do not use the rechargeable batteries (Ni-Cd type).
• Be sure to use alkaline batteries.

ENGLISH

USING FUNCTIONS OF REMOTE CONTROL

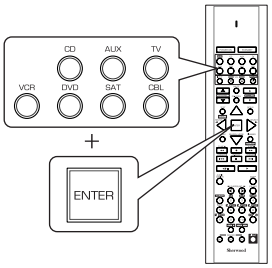
- This remote control can control up to 8 different components.
- Before operating audio and video components other than this receiver with using this remote control, the setup code for each component should be entered.
- For system remote control operation, “000” was stored previously in the memory of the device button “CD” for Sherwood CD player, “DVD” for Sherwood DVD player, "AUX" for Sherwood tape deck and "TV" for Sherwood TV respectively as its factory setup code. So, you don’t need to enter its code for each Sherwood component except in such a case that its code does not work.

Entering a setup code

1. Turn on the component you want to control.

2. Find the setup codes according to the type and the brand name of your component, referring to “Setup Code Table” on page 64.

3. Press and hold down both the "ENTER" button and the desired one of the DEVICE buttons for more than 1 second.

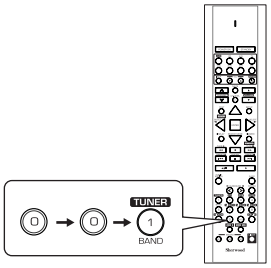


- The LED will flicker once.

■Note :
- The "AUD" button is unavailable for the audio components other than this receiver.

4. Enter a 3 digit code, aiming the remote control at the remote sensor on the component.

Example) When entering "001".



- If entering is performed successfully, the LED will flicker twice.
- To be sure that the setup code is correct, press the POWER ON(or STANDBY) button.
  If your component is tuned off, the setup code is correct.
- When your component is not turned off, repeat the above steps 2 to 4, trying each code for your component until you find one that works.

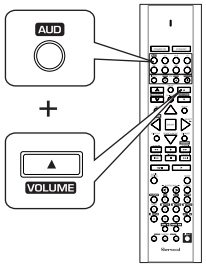
■**Notes:**
- If the LED did not flicker twice, then repeat the above steps 3 to 4 and try entering the same code again.
- Manufacturers may use different setup codes for the same product category. For that reason, it is important that you check to see if the code you have entered operates as many controls as possible. If only a few functions operate, check to see if another code will work with more buttons.

5. Repeat the above steps 1 to 4 for each of your components.

Using a punch-through function

This remote control may be programmed to operate either the AUDIO volume punch-through or the TV volume and/or TV channel punch-through in conjunction with any of the eight components controlled by this remote control. For example, since this receiver will likely be used as the sound system while watching TV, you may want to adjust this receiver's volume although this remote control is set to control the TV.

- When programming this remote control for the AUDIO volume punch-through, press and hold down both "AUD" button and "VOLUME ▲" button for more than 1 second.



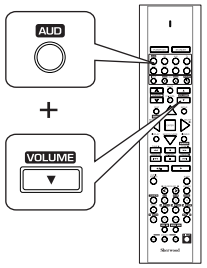
- If programming is performed successfully, the LED will flicker twice.
- When you want either TV volume or TV channel punch-through, press and hold down both "TV" button and either "VOLUME ▲" or "CHANNEL ▲" button for more than 1 second.

■Note:

- If you use one of AUDIO and TV volume punch-through functions, you cannot use the other.

■Removing a punch-through function

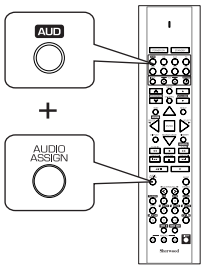
- When removing the AUDIO volume punch-through, press and hold down both "AUD" button and "VOLUME ▼" button for more than 1 second.



- If removing is performed successfully, the LED will flicker twice.
- When you want to remove either TV volume or TV channel punch-through, press and hold down both "TV" button and either "VOLUME ▼" or "CHANNEL ▼" button for more than 1 second.

■Removing all punch-through functions

Press and hold down both "AUD" button and "AUDIO ASSIGN" button for more than 1 second.



- If removing all punch-through functions is performed successfully, the LED will flicker twice.

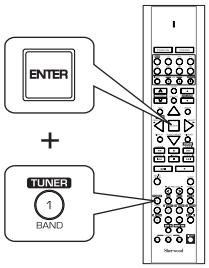
ENGLISH

Programming a macro function

- The macro function enables you to program a series of button operations(up to 10) on this remote control into a single button.
- You can store up to three separate macro command sequences into “M1”, “M2” and “M3” buttons.

1. Press and hold down both "ENTER" button and one of three NUMERIC buttons ("1"~"3") corresponding to "M1"~"M3" buttons for more than 1 second.

Example) When programming a series of button operations into "M1" button.

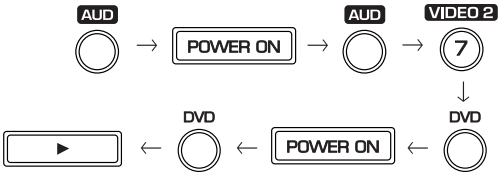


- If the macro mode is entered, the LED will flicker once.

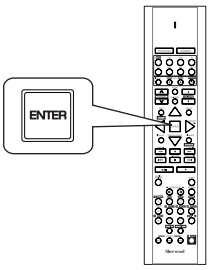
2. Press the operation buttons you want to program in order.

■Note:
You should press the corresponding DEVICE buttons before pressing each operation button.
Example) When playing a DVD on the DVD player connected to VIDEO 2 jacks of this receiver.

①. Press "AUD" button to control this receiver.
②. Press "POWER ON" button to turn this receiver on.
③. Press "AUD" button to control this receiver.
④. Press "VIDEO 2(7)" button to select the desired input source.
⑤. Press "DVD" button to control the DVD player.
⑥. Press "POWER ON" button to turn the DVD player on.
⑦. Press "DVD" button to control the DVD player.
⑧. Press "▶" button to start playback.



3. Press "ENTER" button.



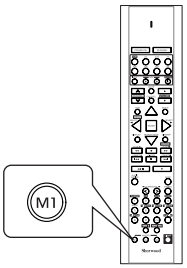
- If the programming is performed successfully, the LED will flicker twice.

■To remove a macro program
- When removing a macro program, perform the above steps 1 and 3, but ignore the step 2.

■To change a macro program
- When a new macro program is stored into a MACRO button with performing the above steps 1 to 3, the previous macro program is cleared from the memory of the MACRO button.

Operating a macro function

- Aim the remote control at the REMOTE SENSORs of the components to be controlled and press the MACRO button you want.
  Example) When pressing “M1” button.



■Notes:
- The codes programmed into a MACRO button will be transmitted at an interval of 0.5 seconds. However, some components may not be able to complete one operation in 0.5 seconds and may miss the next code.
  In this case, the macro function cannot control the corresponding components correctly.
- Be sure to use the remote control within the remote control operation range of the components.
- Depending on the operation status of the components, etc., the macro function cannot control the corresponding components correctly.

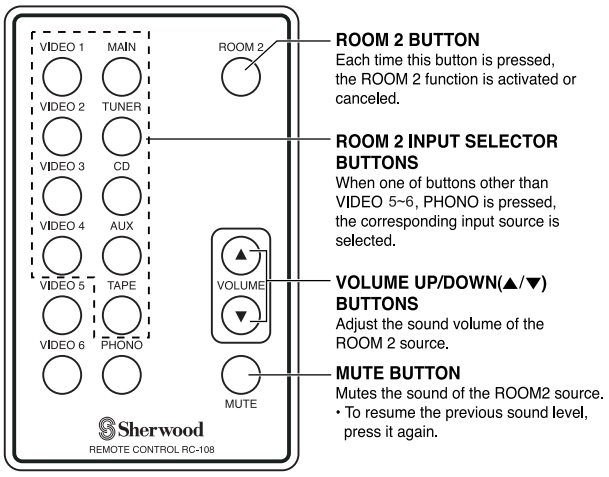
ROOM 2 Remote Controls

This remote control unit is an additional remote control unit for the ROOM 2 source playback only.

- You can use the ROOM 2 functions with this remote control unit more conveniently in another room than with the universal remote control unit.
- For details on ROOM 2 operation, refer to "ROOM 2 SOURCE PLAYBACK" on page 35.

ENGLISH

REMOTE CONTROL OPERATION RANGE



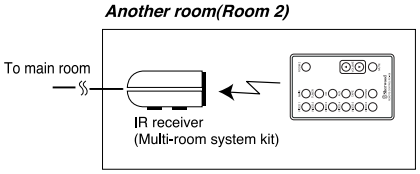
ROOM 2 BUTTON
Each time this button is pressed, the ROOM 2 function is activated or canceled.

ROOM 2 INPUT SELECTOR BUTTONS
When one of buttons other than VIDEO 5~6, PHONO is pressed, the corresponding input source is selected.

VOLUME UP/DOWN(▲/▼) BUTTONS
Adjust the sound volume of the ROOM 2 source.

MUTE BUTTON
Mutes the sound of the ROOM2 source.
• To resume the previous sound level, press it again.

- Aim the ROOM 2 remote control(or the universal remote control) at the IR receiver installed in another room.(For details, refer to “CONNECTING MULTI-ROOM SYSTEM KIT” on page 12.)

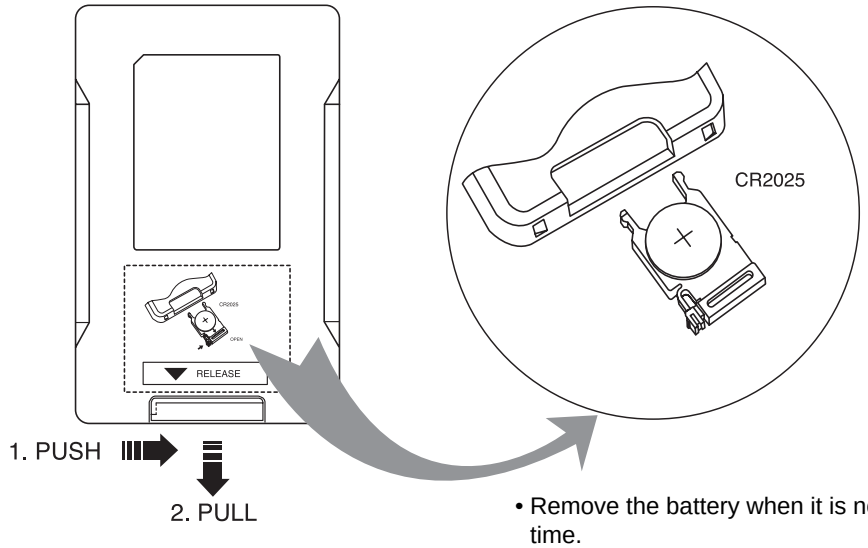


- When you operate the ROOM 2 function in the main room, aim the universal remote control (or the ROOM 2 remote control) at the remote sensor of this receiver.

LOADING BATTERY

1. Remove the cover.

2. Load the battery(CR2025) matching the polarity.



- Remove the battery when it is not used for a long time.

Operations

ENGLISH

■**Notes:**

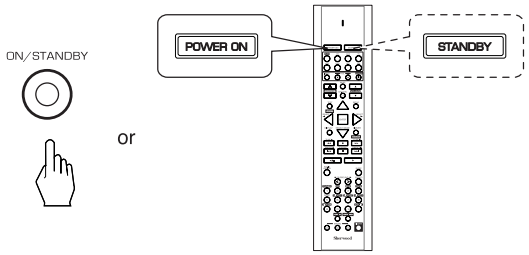
- Before operating this receiver with the supplied remote control, refer to "Universal Remote Controls" on page 15 for details about operation.
- Before operating this receiver, first set this unit as desired for optimum performance, doing the OSD menu setting procedures. (For details, refer to "OSD Menu Settings" on page 38.)

LISTENING TO A PROGRAM SOURCE

Before operation

- Enter the standby mode.
- The POWER ON/STANDBY button lights up amber. This means that the receiver is not disconnected from the AC mains and a small amount of current is retained to support the operation readiness.
- To switch the power off, push the POWER switch again.
  Then the power is cut off and the POWER ON/STANDBY button goes off.

1. In the standby mode, turn the power on.

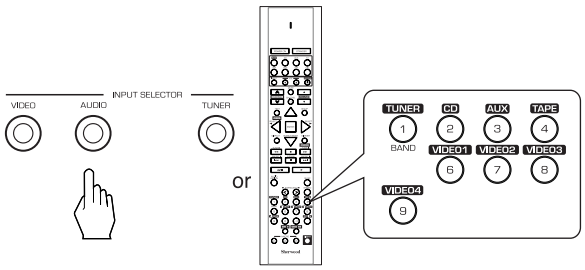


- Each time the POWER ON/STANDBY button on the front panel is pressed, the receiver is turned on to enter the operating mode (the POWER ON/STANDBY button lights up blue) or off to enter the standby mode(the POWER ON/STANDBY button lights up amber).
- On the remote control, press the POWER ON button to enter the operating mode or press the STANDBY button to enter the standby mode.
- In the standby mode, if the INPUT SELECTOR button is pressed, the receiver is turned on automatically and the desired input is selected.

2. Switch the speakers on.

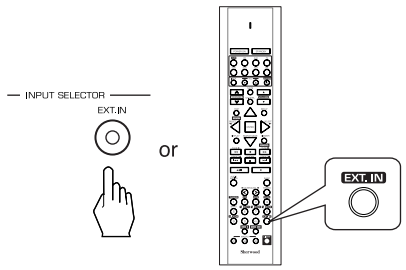
- Then the SPEAKER indicator lights up and the sound can be heard from the speakers connected to the speaker terminals.
- When using the headphones for private listening, press the SPEAKER button again to switch the speakers off.

3. Select the desired input source.



- Each time the "AUDIO" button on the front panel is pressed, the input source changes as follows:
  → CD → AUX → TAPE →
- Each time the "VIDEO" button on the front panel is pressed, the input source changes as follows:
  → VIDEO 1→VIDEO 2→VIDEO 3 →VIDEO 4 →
- Each time the "TUNER" button is pressed, the band changes as follows:
  → FM STereo → FM MONO → AM →

■**When selecting the EXTERNAL IN as desired,**

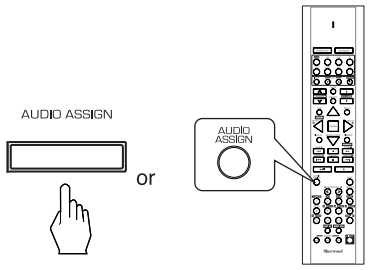


- Depending on the power amplifier setting for the surround back channels and the surround back speaker setting, "EXT. IN" is displayed and 8(/7/6) separate analog signals from the component connected to this input pass through the tone and volume circuits only and can be heard from your speakers.
- Select the desired input source to cancel the external in function.
- These analog signals can be heard only, not recorded.

When CD, AUX, VIDEO 1~ 4 is selected as an input source

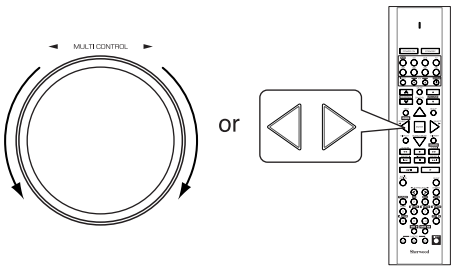
- If the AUDIO MODE is set to the mode other than "DIGITAL" for the corresponding input source on the INPUT SETUP menu, you cannot hear the sound from the selected digital input. (For details, refer to "SETTING THE INPUT SETUP" on page 44.)

4. Press the AUDIO ASSIGN button.

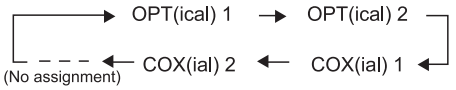


- "AUD ~" is displayed for several seconds.
- "AUD ~" disappears, press the AUDIO ASSIGN button again.

5. Select the desired of the digital inputs connected while displaying "AUD ~".



- Each time the MULTI CONTROL knob is rotated or the CURSOR LEFT(◀)/RIGHT(▶) buttons are pressed, the corresponding input is selected as follows :



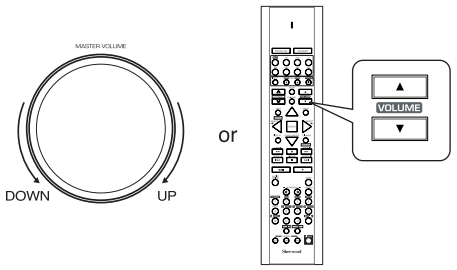
■ **Notes:**

- When the selected digital input is not connected or assigned, "o1", "c1", etc. (, meaning no digital signal input from it) or "d" (, meaning no audio assignment) flickers and no sound will be heard.
- The selected digital input is automatically assigned to the corresponding input source on the INPUT SETUP menu. (For details, refer to "SETTING THE INPUT SETUP" on page 44.)
- The sound from the component connected to the selected digital input can be heard regardless of the selected input source.

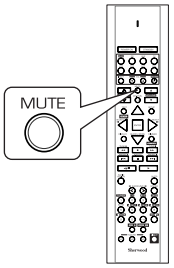
6. Operate the selected component for playback.

- When playing back the program sources with surround sound, refer to “ENJOYING SURROUND SOUND” on page 26.

7. Adjust the (overall) volume.

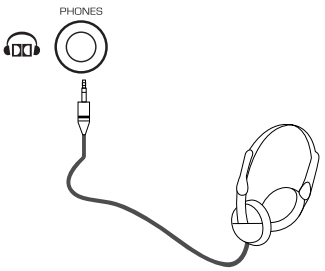


Muting the sound



- "MUTE" flickers.
- To resume the previous sound level, press it again.

Listening with headphones



- Ensure that the SPEAKER button is set to off.
- Depending on the signal format which is being input, you can listen in Dolby Headphone mode, stereo mode, etc. (For details, refer to "Listening in Dolby Headphone mode" on page 27).
- When the EXTERNAL IN is selected as an input source, only front left and front right channel signals can be reproduced through the headphones.

■ **Note:**

- Be careful not to set the volume too high when using headphones.

ENGLISH

SURROUND SOUND

• This receiver incorporates a sophisticated Digital Signal Processor that allows you to create optimum sound quality and sound atmosphere in your personal Home Theater.

Surround modes

■ DTS Digital Surround

DTS Digital Surround(also called simply DTS) is a multi-channel digital signal format which can handle higher data rates. Discs bearing the " DIGITAL dts SURROUND " include the recording of up to 5.1 channels of digital signals, which can be generally thought to provide better sound quality due to the lower audio compression required.
It also provides wide dynamic range and separation, resulting in magnificent sound.

■ DTS - ES Extended Surround™ (EXTENDED dts ES SURROUND)

This is a new multi channel digital signal format which greatly improves the 360- degree surround impression and space expression thanks to further expanded surround signals, offering high compatibility with the conventional DTS format. In addition to the 5.1 channels, DTS-ES Extended Surround also offers the surround back (sometimes also referred to as "surround center") channel for surround playback with a total of 6.1 channels. DTS-ES Extended Surround includes two signal formats with different surround signal recording methods as follows:

• DTS-ES™ Discrete 6.1

Because the signals for 6.1 channels (including the surround back channel) are fully independent, it is possible to achieve a sense that the acoustic image are moving about freely among the background sounds surrounding the listener from 360 degrees. Though maximum performance is achieved when sound tracks recorded with this system are played using a DTS -ES decoder, when played with a conventional DTS decoder, the surround back channel signals are automatically downmixed to the surround left and surround right channels so that none of the signal components are lost.

• DTS - ES™ Matrix 6.1

With this format, the additional surround back channel signals undergo matrix encoding and are input to the surround left and surround right channels beforehand. During playback, they are decoded to the surround left, surround right and surround back channels.
Because the bit stream format is 100% compatible with conventional DTS signals, the effect of the DTS-ES Matrix 6.1 format can be achieved even with DTS 5.1- channel signal sources. Of course, it is possible to play DTS-ES Matrix 6.1 - channel signal sources with a DTS 5.1 - channel decoder.
When DTS-ES Discrete 6.1 or Matrix 6.1 sources are decoded with a DTS - ES decoder, the format is automatically detected upon decoding and the optimum surround mode is selected. However, some DTS - ES Matrix 6.1 sources may be detected as DTS sources. In this case, the DTS - ES Matrix mode should be selected manually to play these sources.

■ DTS Neo : 6™ surround

This mode applies conventional 2-channel signals such as digital PCM or analog stereo signals to the high precision digital matrix decoder used for DTS-ES Matrix 6.1 to achieve 6.1-channel surround playback. DTS Neo : 6 surround includes two modes for selecting the optimum decoding for the signal source.

• DTS Neo : 6 Cinema

This mode is optimum for playing movies. Decoding is performed with emphasis on separation performance to achieve the same atmosphere with 2-channel sources as with 6.1-channel sources.

• DTS Neo : 6 Music

This mode is suited mainly for playing music. The front left and front right signals bypass the decoder and are played directly so there is no loss of sound quality, and the effect of the surround signals from the center, surround left, surround right and surround back channels adds a natural sense of expansion to the sound field.

■ DTS 96/24

Conventional surround formats used sampling frequencies of 48 or 44.1 kHz, so 20 kHz was about the maximum playback signal frequency. With DTS 96/24, the sampling frequency is increased to 96 or 88.2 kHz to achieve a wide frequency range of over 40 kHz. In addition, this format has a resolution of 24 bits, resulting in the same frequency band and dynamic range as 96kHz / 24 bit PCM signals.
As with conventional DTS surround, DTS 96/24 is compatible with a maximum of 5.1 channels. DTS 96/24 is fully compatible with the conventional DTS surround format, so DTS 96/24 sources can be played using a conventional DTS 5.1 channel decoder.

"DTS" and "DTS-ES I Neo:6" are registered trademarks of DTS, Inc. "96/24" is a trademarks of DTS, Inc.

■ Dolby Digital

Dolby Digital is the multi- channel digital signal format developed by Dolby Laboratories. Discs bearing the " DOLBY DIGITAL " includes the recording of up to 5.1 channels of digital signals, which can reproduce much better sound quality, spatial expansion and dynamic range characteristics than the previous Dolby Surround effect.

■ Dolby Digital EX

This mode creates the back (sometimes also referred to as "surround center") signals from the surround left and right signals in Dolby Digital 5.1 channel source using a matrix decoder and provides 6.1 channel surround playback. For the best results, this mode should be selected during playback of sources(bearing the " DOLBY DIGITAL•EX ") recorded in Dolby Digital EX. With this additional channel, you can experience more dynamic and realistic moving sound especially.
When Dolby Digital EX sources are decoded with a Dolby Digital EX decoder, the format is automatically detected upon decoding and the Dolby Digital EX mode is selected. However, some Dolby Digital EX sources may be detected as Dolby Digital sources. In this case, the Dolby Digital EX mode should be selected manually to play these sources.

■ Dolby Pro Logic IIx surround
Dolby Pro Logic IIx decodes all stereo (2 channel) and 5.1 channel sources and extends to 7.1channel surround playback. It delivers the most natural, full range and immersing 7.1 channel listening experience. Dolby Pro Logic IIx surround includes three modes as follows :

• Dolby Pro Logic IIx Movie
When enjoying movies, this mode allows you to further enhance the cinematic quality by adding processing that emphasizes the sounds of the action special effects.

• Dolby Pro Logic IIx Music
When listening to music, this mode allows you to further enhance the sound quality by adding processing that emphasizes the musical effects.

• Dolby Pro Logic IIx Game
When playing games, this mode allows you to further enhance the dynamic surround effects by adding processing that emphasizes the surrounded and exciting sound.

■ Dolby Pro Logic II surround
This mode applies conventional 2-channel signals such as digital PCM or analog stereo signals as well as Dolby Surround signals, etc. to surround processing to offer improvements over conventional Dolby Pro Logic circuits. Dolby Pro Logic II surround includes Dolby Pro Logic II Movie, Dolby Pro Logic II Music and Dolby Pro Logic II Game like Dolby Pro Logic IIx surround.

■ Dolby Virtual Speaker
This mode creates a virtual surround sound field using as few as two front speakers, allowing you to experience listening from 5.1 channel speakers.
This mode is effective not only for 5.1 channel sources but also for stereo(2 channel) sources.
Dolby VIrtual Speaker includes two listening mode as follows:

• Dolby Virtual Speaker Reference
The width of the front sound image is defined by the actual distance between front speakers.

• Dolby Virtual Speaker Wide
The width of the front sound image seems to extend beyond the front speakers.

■ Dolby Headphone
The Dolby Headphone function simulates 5.1 channel surround sound , which allows you to enjoy 5.1 channel surround sound through 2 channel headphones, just like listening from 5.1 channel speakers.
This mode is effective not only for 5.1 channel sources but also for stereo (2 channel) sources.

Manufactured under license from Dolby Laboratories.
“Dolby”, “Pro Logic” and the double-D symbol are trademarks of Dolby Laboratories.

- The following modes apply conventional 2-channel signals such as digital PCM or analog stereo signals to high performance Digital Signal Processor to recreate sound fields artificially. Select one of the 7 provided surround modes according to the program source you want to play.

■ Theater
This mode provides the effect of being in a movie theater when watching a play.

■ Hall
This mode provides the ambience of a concert hall for classical music sources such as orchestral, chamber music or an instrumental solo.

■ Stadium
This mode provides the expansive sound field to achieve the true stadium effect when watching baseball or soccer games.

■ Room
This mode provides the sound field of a house with a low ceiling and hard walls for jazz music.

■ Panorama
This mode provides a dynamic and broad sound space to highten the overall impact of the sound track.

■ Classic
This mode provides the acoustic effects of a large concert hall for classical music.

■ Multi CH Stereo
This mode is designed for playing background music. The front, surround and surround back channels create a stereo image that encompasses the entire area.

- When using the EXTERNAL INs to play back the sound from the additional multi-channel decoder for surround sound, you can enjoy the corresponding surround sound, too.(For details, refer to the operating instructions of the component to be connected.)

For your reference, the sound from each channel can be reproduced according to the surround modes as follows:

Modes / Channels	FRONT L/R	CENTER	SURROUND L/R	SURROUND BACK L/R	SUBWOOFER
DTS, DTS 96/24	○	○	○	—	○
DTS ES DISCRETE/MATRIX	○	○	○	○	○
DTS NEO: 6 CINEMA/MUSIC	○	○	○	○	—(*)
DOLBY DIGITAL	○	○	○	—	○
DOLBY DIGITAL EX	○	○	○	○	○
DOLBY PRO LOGIC IIx MOVIE/MUSIC/GAME	○	○	○	○	○
DOLBY PRO LOGIC II MOVIE/MUSIC/GAME	○	○	○	—	○
DOLBY VIRTUAL SPEAKER	○	○	○	—	—(*)
MULTI PCM	○	○	○	○/—	○
Other Surrounds	○	○	○	○	—(*)
STEREO	○	—	—	—	—(*)
EXTERNAL IN	○	○	○	○	○

(*): Depending on the subwoofer setting, the sound from the subwoofer channel may be reproduced.

- Depending on the speaker settings and the number of the encoded channels, etc., the sound from the corresponding channels cannot be reproduced.(For details, refer to "SETTING THE SPEAKER / ROOM EQ SETUP" on page 48.)

ENJOYING SURROUND SOUND

■ **Notes**:
- Before surround playback, first perform the speaker setup procedure, etc. on the OSD menu for optimum performance. (For details, refer to "SETTING THE SPEAKER/ROOM EQ SETUP" on page 48.)
- When playing digital signals from the Dolby Digital program source or selecting the surround mode such as Dolby Pro Logic II /Dolby Pro Logic IIx Music, Dolby Headphone, Dolby Virtual Speaker modes, you can adjust their parameters for optimum surround effect. (For details, refer to "SETTING THE SOUND PARAMETER" on page 57.)
- When the EXTERNAL IN is selected as an input source, the surround modes cannot be selected.

Depending on how to select a surround mode, select the auto surround mode or the manual surround mode.

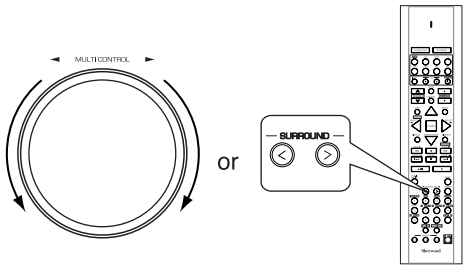
- Each time this button is pressed, the mode changes as follows :

Auto surround mode : The optimum surround mode will be automatically selected depending on the signal format being input.
("AUTO" lights up.)

Manual surround mode : You can select the desired of different surround modes selectable for the signal being input with using the MULTI CONTROL knob or the SURROUND MODE UP/DOWN (> / <) buttons.
("AUTO" goes off.)

■ **Notes :**
- Even when the auto surround mode is selected and the same type of digital signal format is being input, the optimum surround mode may vary depending on whether the speaker type is set to "NO" or not.
- When the auto surround mode is selected, the surround modes other than the optimum surround mode cannot be selected.

■ When selecting the manual surround mode with pressing the SURROUND MODE button on the front panel. Select the desired surround mode.



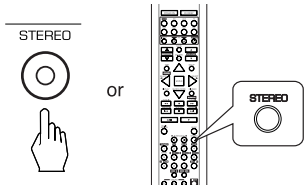
- Each time the MULTI CONTROL knob is rotated or the SURROUND MODE UP / DOWN (>/<) buttons are pressed, the surround mode changes depending on the input signal format as follows :

Signal format being input	Selectable surround mode
Dolby Digital EX 6.1 channel sources, Dolby Digital 5.1 channel sources	<DOLBY DIGITAL EX, DOLBY D + PLIIx MUSIC>, (DOLBY D + PLIIx MOVIE), DOLBY DIGITAL, DOLBY VS REF, DOLBY VS WIDE
Dolby Digital 2 channel sources	<DOLBY PLIIx MOVIE, DOLBY PLIIx MUSIC, DOLBY PLIIx GAME>, [DOLBY PLII MOVIE, DOLBY PLII MUSIC, DOLBY PLII GAME], DOLBY VS REF, DOLBY VS WIDE
DTS ES Discrete/Matrix 6.1 channel sources	<corresponding DTS ES mode, DTS + PLIIx MUSIC>, (DTS + PLIIx MOVIE), DTS, DOLBY VS REF, DOLBY VS WIDE
DTS sources, DTS 96/24 sources	corresponding DTS mode, DOLBY VS REF, DOLBY VS WIDE, <DTS + NEO:6, DTS + PLIIx MUSIC>, (DTS + PLIIx MOVIE)
PCM (multi-channel) sources*	MULTI PCM, <DOLBY PLIIx MOVIE, DOLBY PLIIx MUSIC>, DOLBY VS REF, DOLBY VS WIDE
96 kHz PCM (2 channel) sources PCM (2 channel) sources, Analog stereo sources	<DOLBY PLIIx MOVIE, DOLBY PLIIx MUSIC, DOLBY PLIIx GAME>, [DOLBY PLII MOVIE, DOLBY PLII MUSIC, DOLBY PLII GAME], DOLBY VS REF, DOLBY VS WIDE, NEO:6 CINEMA, NEO:6 MUSIC, THEATER, HALL, STADIUM, ROOM, PANORAMA, CLASSIC, MULTI CH STEREO

- Depending on surround back speaker setting, some surround modes can be selected or not as follows:
  < >: Possible only when surround back speaker is not set to "NO".
  [ ] : Possible only when surround back speaker is set to "NO".
  ( ): Possible only when surround back speaker is set to " 2CH".
  * : Depending on the signal format being input, the Dolby Pro Logic IIx modes and the Dolby Virtual Speaker modes may not be selected.

Continued

■To cancel the surround mode for stereo operation



- Depending on the signal format which is being input, either the stereo mode or the 2CH downmix mode is selected.
- To cancel either the stereo mode or the 2CH downmix mode, select the surround mode with using the MULTI CONTROL knob on the front panel or the SURROUND MODE UP/DOWN (>/<) buttons on the remote control.

■2CH downmix mode

- This mode allows the multi-channel signals encoded in DTS or Dolby Digital format, etc. to be mixed down into 2 front channels and to be reproduced through only two front speakers or through headphones.
- When the SPEAKER button is set to off to listen with headphones, if the STEREO button is pressed while playing the multi-channel digital signals from DTS or Dolby Digital sources, etc., it will enter the 2CH downmix mode automatically.
- To cancel the 2CH downmix mode, select the Dolby Headphone mode with using the MULTI CONTROL knob on the front panel or the SURROUND MODE UP/DOWN (>/<) buttons on the remote control.

Listening in Dolby Headphone mode

- The Dolby Headphone function simulates 5.1 channel surround sound, which allows you to enjoy 5.1 channel surround sound through 2 channel headphones, just like listening from 5.1 channel speakers.

■Note :

- Only when the SPEAKER button is set to off, the Dolby Headphone mode can be selected.
- Switch the speakers off to listen with headphones.

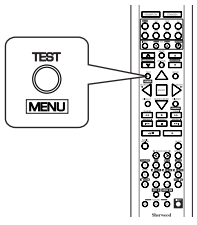
- Then "DOLBY HEADPHONE" (or "DOLBY H ~ ") is displayed and the Dolby Headphone mode is selected.
- To cancel the Dolby Headphone mode, press the SPEAKER button again.

Adjusting each channel level with test tone

- The volume level of each channel can be adjusted easily with the test tone function.

■Note : When the SPEAKER button is set to off, the test tone function does not work.

1. Enter the test tone mode.



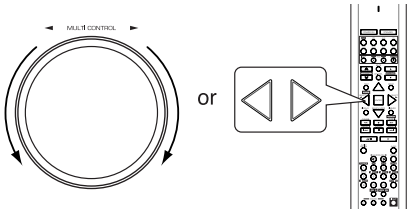
- The test tone will be heard from the speaker of each channel for 2 seconds as follows:

FL (Front Left) → C (Center) → FR (Front Right) → SR (Surround Right)

SUB (Subwoofer) ← SL((Surround Left) ← SB) or ((Surround Back) ← SBL (Surr.Back Left) ← SBR) (Surr.Back Right) ←

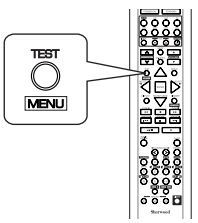
- When the speaker setting is "NO", the test tone of the corresponding channel is not available.
- ( ) : Possible depending on whether the surround back channel is set to "2 CH" or "1 CH".

2. At each channel, adjust the level as desired until the sound level of each speaker is heard to be equally loud.



- You can select the desired channel with pressing the CONTROL UP/DOWN (▲/▼) buttons or the CURSOR UP/DOWN (▲/▼) buttons.

3. Cancel the test tone function.



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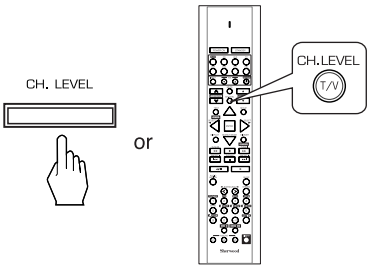
Adjusting the current channel level

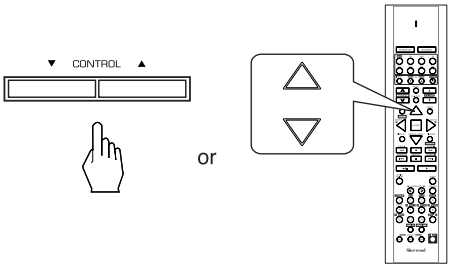
- After adjusting each channel level with test tone, adjust the channel levels either according to the program sources or to suit your tastes.
- You can adjust the current channel levels as desired. These adjusted levels are just memorized into user's memory ("CAL"), not into preset memory("REF 1", "REF 2").

1. Press the CHANNEL LEVEL button.



- Then the memory mode ("CAL" or "REF 1") is displayed for several seconds.
- When the memory mode or channel level disappears, press this button again.

2. Select the desired channel.



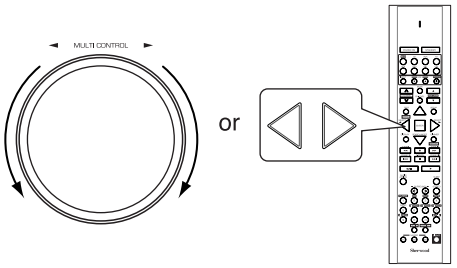
- Each time these buttons are pressed, the corresponding channel is selected as follows:

REF 1(or CAL) ↔ FL ↔ C ↔ FR ↔ SR
〈 LFE 〉 ↔ SUB ↔ SL(↔ SB) or (↔ SBL ↔ SBR)
DTS LFE or Dolby Digital LFE

( ): Possible depending on whether the surround back channel is set to "2 CH" or "1 CH".
< >: Possible only when the digital signals from Dolby Digital or DTS program sources that include LFE signal are input.

- Depending on the speaker settings("NO", etc.) and surround mode, etc., some channels cannot be selected.
- When the SPEAKER button is set to off, only the Front Left, Front Right (and LFE) channels can be selected.

3. Adjust the level of the selected channel as desired.



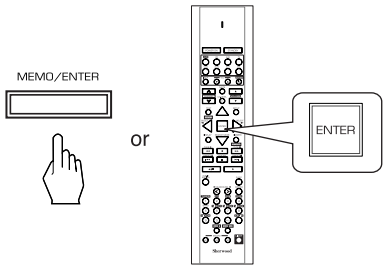
- The LFE level can be adjusted within the range of -10~0 dB and other channel levels within the range of -15~+15 dB.
- In general, we recommend the LFE level to be adjusted to 0 dB.(However, the recommended LFE level for some early DTS software is -10 dB.) If the recommended levels seem too high, lower the setting as necessary.

4. Repeat the above steps 2 and 3 to adjust each channel level.

Memorizing the adjusted channel levels

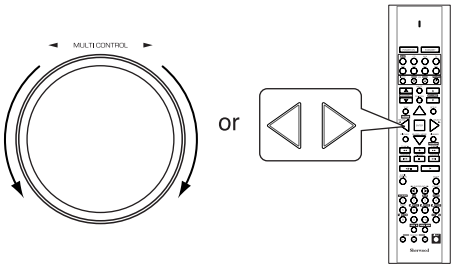
• You can memorize the adjusted channel levels into preset memory("REF 1", "REF 2") and recall the memorized whenever you want.

1. After performing the steps 1 ~ 4 in "Adjusting the current channel level" procedure on page 28, press the (MEMORY/) ENTER button.



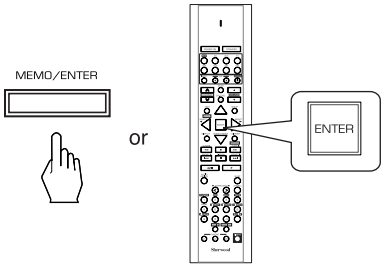
• The "1" of "REF 1" indication flickers for several seconds.

2. Select the desired one of REF 1 and REF 2.



• If the preset memory disappears, perform the above step 1 again.

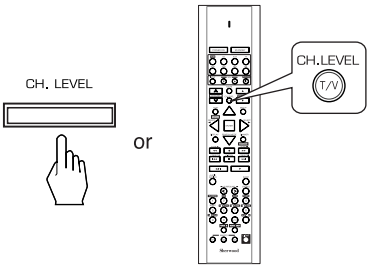
3. Confirm your selection.



• The adjusted channel levels have now been memorized into the selected memory.

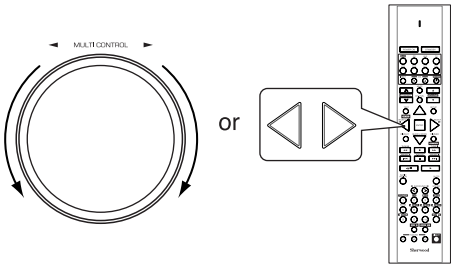
Recalling the memorized channel levels

1. Press the CHANNEL LEVEL button.



• "REF 1" (or "CAL") is displayed for several seconds.
• If the channel level mode display disappears, press this button again.

2. Select the desired one of REF 1 and REF 2.



• Then the channel levels memorized into the selected preset memory are recalled.

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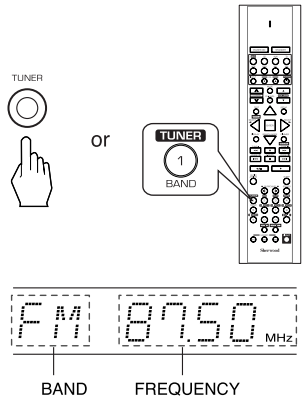
LISTENING TO RADIO BROADCASTS

Auto tuning

1. Select the desired band.

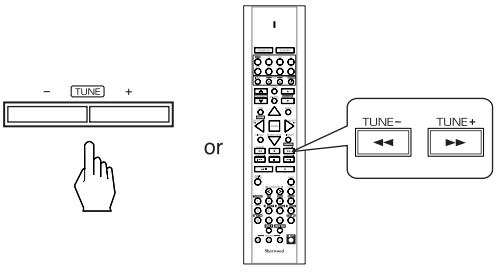


- Each time this button is pressed, the band changes as follows :

→ FM STereo → FM MONO → AM
("ST" lights up) ("ST" goes off)

- When FM stereo broadcasts are poor because of weak broadcast signals, select the FM mono mode to reduce the noise, then FM broadcasts are reproduced in monaural sound.

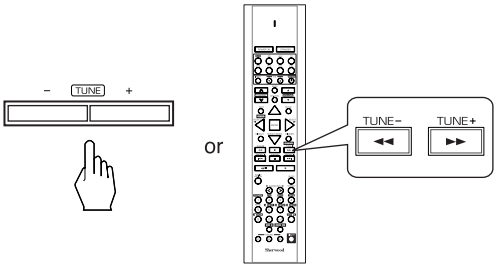
2. Press the TUNING UP(+)/DOWN(-) buttons for more than 0.5 second.



- The tuner will now search until a station of sufficient strength has been found. The display shows the tuned frequency and "TUNED".
- If the station found is not the desired one, simply repeat this operation.
- Weak stations are skipped during auto tuning.

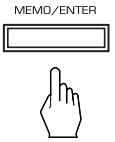
Manual tuning

- Manual tuning is useful when you already know the frequency of the desired station.
- After selecting the desired band, press the TUNING UP(+) / DOWN(-) buttons repeatedly until the right frequency has been reached.



Auto presetting

- Auto presetting function automatically searches for FM stations only and store them in the memory.
- While listening to radio broadcasts, press and hold down the MEMORY/ENTER button for more than 2 seconds.
- Then "AUTO MEM" flickers and this receiver starts auto presetting.
- Up to 30 FM stations can be stored.



■ Notes:

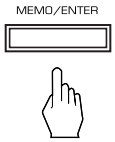
- FM stations of weak strength cannot be memorized.
- To memorize AM stations or weak stations, preform "Manual presetting" procedure with using "Manual tuning" operation.

Manual presetting

• You can store up to 30 preferred stations in the memory.

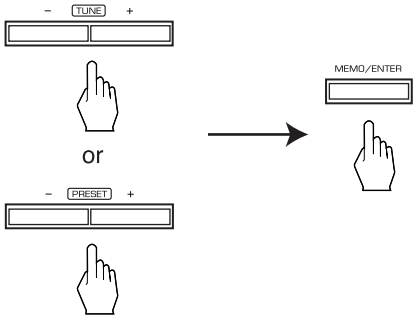
1. Tune in the desired station with auto or manual tuning.

2. Press the MEMORY/ENTER button.



• "MEM" is flickering for several seconds.

3. Select the desired preset number (1~30) and press the MEMORY/ENTER button.



• The station has now been stored in the memory.
• A stored frequency is erased from the memory by storing another frequency in its place.
• If "MEM" goes off, start again from the above step 2.

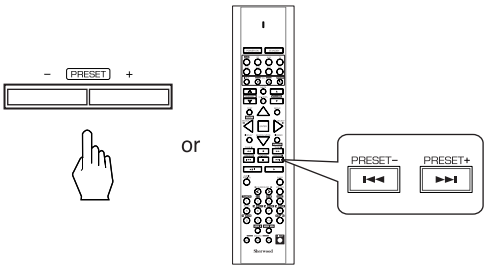
4. Repeat the above steps 1 to 3 to memorize other stations.

■MEMORY BACKUP FUNCTION

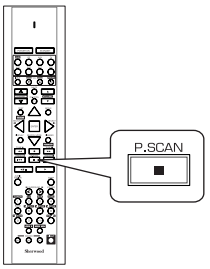
The following items, set before the receiver is turned off, are memorized.
• INPUT SELECTOR settings
• Surround mode settings
• Preset stations,etc.

Tuning to preset stations

• After selecting the tuner as an input source, select the desired preset number.



Scanning preset stations in sequence



• The receiver will start scanning the stations in the preset sequence and each station is received for 5 seconds.
• At the desired station, press this button again to stop scanning.

ENGLISH

RDS Tuner(Regional Option for some countries in Europe, etc.)

ENGLISH

LISTENING TO RDS BROADCASTS (FM ONLY)

RDS(Radio Data System) is a method for sending information signals together with the transmitter signals. Your tuner is capable of translating these signals and putting the information on the display. These codes contain the following informations. Program Service name(PS), A list of Program Types(PTY), Traffic Announcement(TA), Clock Time(CT), Radio Text(RT).

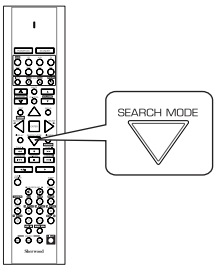
■ **Note :**

• In the other countries, RDS tuner function cannot be available.

RDS search

• Use this function to automatically search and receive the stations offering RDS services.

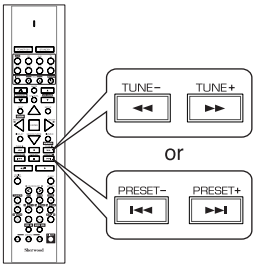
1. In the FM mode, select the RDS search mode.



• Each time this button is pressed, the search mode changes as follows :

→ RDS SRCH → TP SRCH → PTY SRCH → OFF →

2. While displaying "RDS SRCH"

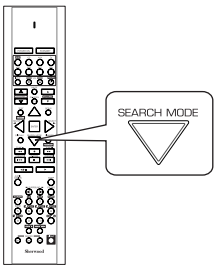


• The tuner automatically searches stations offering RDS services and the station name is displayed.
• If no other RDS station is found, "NO RDS" is displayed.
• When "RDS SRCH" is not displayed, repeat again from the above step 1.

TP search

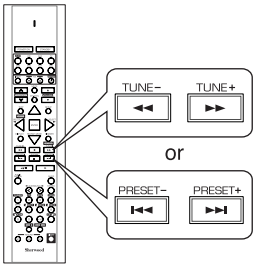
• Use this function to automatically search and receive the stations broadcasting the traffic program.

1. In the FM mode, select the TP search mode



• "TP SRCH" is displayed.

2. While displaying "TP SRCH".

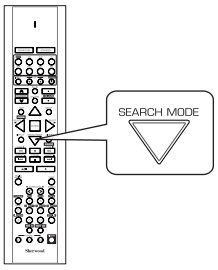


• The tuner automatically searches stations broadcasting the traffic program.
• "NO TRAFF"is displayed if the signal is too weak or there are no stations broadcasting the traffic program.
• When "TP SRCH" is not displayed, repeat again from the above step 1.

PTY search

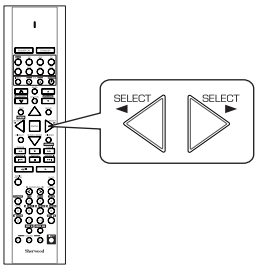
• Use this function to automatically search and receive the stations broadcasting the desired program type.

1. In the FM mode, select the PTY search mode.



• "PTY SRCH" is displayed.

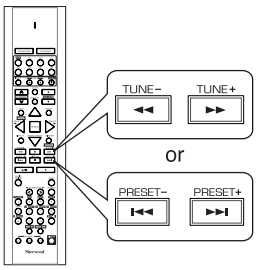
2. While displaying "PTY SRCH", select the desired program type.



• Each time these buttons are pressed, one of 32 different types of programs is selected.
(NEWS, AFFAIRS, INFO, SPORT, EDUCATE, DRAMA, CULTURE, SCIENCE, VARIED, POP M, ROCK M, EASY M, LIGHT M, CLASSICS, OTHER M, WEATHER, FINANCE, CHILDREN, SOCIAL, RELIGION, PHONE IN, TRAVEL, LEISURE, JAZZ, COUNTRY, NATION M, OLDIES, FOLK M, DOCUMENT, TEST, ALARM, NONE)

• When "PTY SRCH" is not displayed, repeat again from the above step 1.

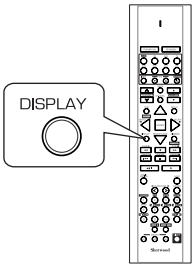
3. While displaying the desired program type.



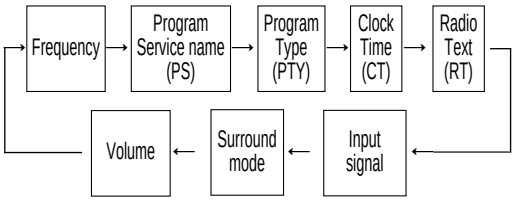
• The tuner automatically searches a station offering PTY services.
• If no station is found, "NO PROG" is displayed.

DISPLAY

• In the FM mode,



• Each time the DISPLAY button is pressed, the display mode changes as follows:



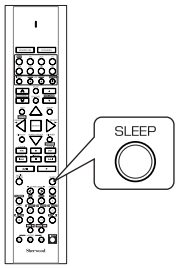
• If the signals are too weak or no RDS service is available, "NO NAME", "NO PTY", "NO TIME" or "NO TEXT" will be displayed.

ENGLISH

OTHER FUNCTIONS

Operating the sleep timer

- The sleep timer allows the system to continue to operate for a specified period of time before automatically shutting off.
- To set the receiver to automatically turn off after the specified period of time.

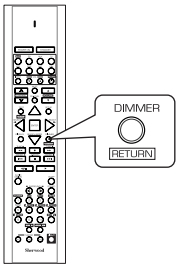


- Each time this button is pressed, the sleep time changes as follows:

→ 10 → 20 → 30 → --- → 90 → OFF
Unit : minutes

- While operating the sleep timer, " ☾ " lights up.

Adjusting the brightness of the fluorescent display



- Each time this button is pressed, the brightness of the fluorescent display changes as follows:

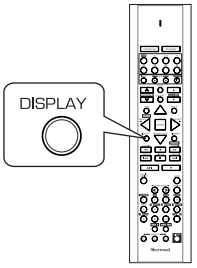
→ ON → dimmer → OFF

- In the display OFF mode, pressing any button will cancel the display OFF mode.

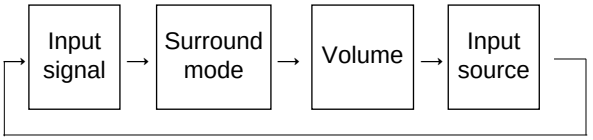
Displaying the audio information

- You can check the audio information on the input source.

- During playback,



- Each time this button is pressed, the display mode changes as follows :



- When the EXTERNAL IN is selected as an input source, the surround mode is not displayed.
- When RDS tuner function is available in your country, for details on the FM mode information, see "DISPLAY" on page 33.

ROOM 2 SOURCE PLAYBACK

- This function allows enjoying one source in the main room and playing another in a different room at the same time.
- When you connect the multi-room system kit to the IR IN jack of this receiver, you can control this receiver with not only the universal remote control unit but also the ROOM 2 remote control unit in a different room, too. (For details, refer to "CONNECTING MULTI-ROOM SYSTEM KIT" on page 12 and "ROOM 2 Remote Controls" on page 21.)

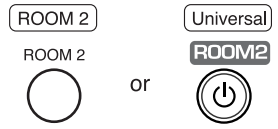
■ **Notes:**
- The analog signals from the EXTERNAL INs and the digital signals cannot be output to the different room, meaning no playback in a different room.
- You cannot play the ROOM 2 source in any surround mode.

ENGLISH

■ When using the buttons on the remote control unit.

1. Press the ROOM 2 button.

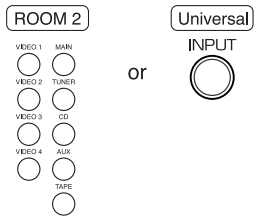
- ROOM 2 ~ is displayed for several seconds.
- Each time this button is pressed, the ROOM 2 mode changes as follows :
  OFF : To turn off the ROOM 2 function. ("R2" goes off .)
  ↕
  ON : To turn it on. ("R2" lights up.)



■ **Note :**
- When the ROOM 2 mode is set to OFF, you cannot adjust the ROOM 2 volume.

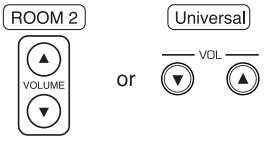
2. Select the desired input as a ROOM 2 source.

- Each time the INPUT button on the universal remote control unit is pressed, the ROOM 2 input can be selected among MAIN source, TUNER, CD, AUX, TAPE, VIDEO 1 ~ VIDEO 4.



3. Adjust the ROOM 2 volume.

- You can adjust the volume on the power amplifier assigned to "BACK ← → ROOM 2" or "ROOM 2" when the ROOM 2 speaker terminals are connected to the speakers in a different room. (For details, refer to "When selecting the AMP ASSIGN" on page 40.)
- The MUTE button on the ROOM 2 remote control unit can be available only when the ROOM 2 function is operating.

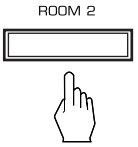


4. Start play on the component related to the ROOM 2 source.

■ When using the buttons on the front panel.

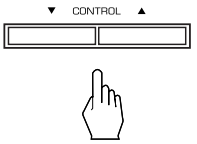
1. Press the ROOM 2 button to enter the ROOM 2 mode.

- ROOM 2 ~ is displayed for several seconds.
- When the ROOM 2 setting mode disappears, press the ROOM 2 button again.



2. Select the desired mode while displaying the ROOM 2 setting mode.

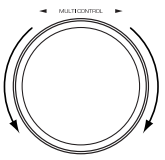
- Each time these buttons are pressed, the mode changes as follows :
  ROOM 2 ~ (ROOM 2 mode) : To turn on or off the ROOM 2 function.
  ↕
  IN ~ (ROOM 2 input) : To select the desired ROOM 2 source.
  ↕
  VOL ~ (ROOM 2 volume) : To adjust the volume on the power amplifier assigned to "BACK ← → ROOM 2" or "ROOM 2".



■ **Note :** When the ROOM 2 mode is set to OFF, the ROOM 2 input and the ROOM 2 volume cannot be selected

3. Set the selected mode as desired.

■ When selecting the ROOM 2 mode.
OFF : To turn off the ROOM 2 function. ("R2" goes off.)
↕
ON : To turn it on. ("R2" lights up.)



■ When selecting the ROOM 2 input.
- You can select the desired among MAIN source, TUNER, CD, AUX, TAPE, VIDEO 1 ~ VIDEO 4 as a ROOM 2 source.

■ When selecting the ROOM 2 volume.
- You can adjust the volume on the power amplifier assigned to "BACK ← → ROOM 2" or "ROOM 2" when the ROOM 2 speaker terminals are connected to the speakers in a different room. (For details, refer to "When selecting the AMP ASSIGN" on page 40.)

4. Start play on the component related to the ROOM 2 source.

■ **Notes:**
- When the EXTERNAL IN is selected as a main input, if the MAIN source is selected as a ROOM 2 input, no audio signal can be heard in the different room (ROOM 2).
- Even when this receiver enters the standby mode, in such a case that "R2" lights up still and the POWER ON/STANDBY button lights up blue as it does in the operating mode, meaning only the ROOM 2 circuitry operates, the ROOM 2 source can be played independently.
- When you do not use the ROOM 2 function, turn off the ROOM 2 function to save electricity.

ENGLISH

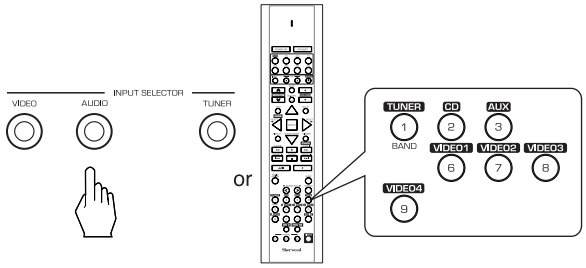
RECORDING

- The analog signals from the EXTERNAL INs as well as the digital signals from the coaxial or optical digital input can be heard but cannot be recorded.
- When recording the analog signals from CD, AUX, VIDEO 1 ~ 4, be sure to select the "ANALOG" for the AUDIO MODE. (For details, refer to "When selecting the AUDIO MODE" on page 45.)
- The volume and tone (bass, treble) settings have no effect on the recording signals.

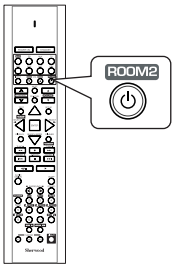
Recording with TAPE

- To record the analog signals onto the recording equipment, be sure to connect the ROOM2 OUT jacks to the recording equipment. (For details, refer to "CONNECTING AUDIO COMPONENTS" on page 7.)

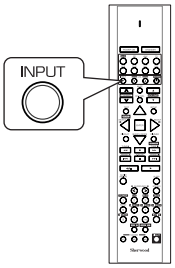
1. Select the desired input as a recording source except for TAPE.



2. Turn on the ROOM 2.



3. Select the MAIN as a ROOM 2 input.



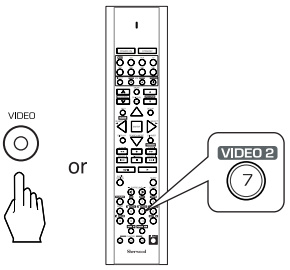
4. Start recording on the TAPE.

5. Start play on the desired input.

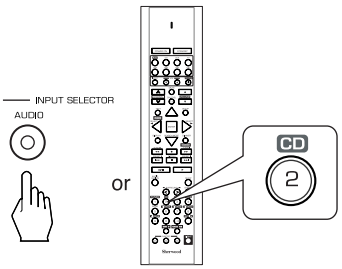
Dubbing the audio and video signals separately onto VIDEO 1

Example: When dubbing the VIDEO 2 video signal and the CD audio signal separately onto VIDEO 1.

1. Select VIDEO 2 as a video recording source.



2. Select CD as an audio recording source.



3. Start recording on the VIDEO 1.

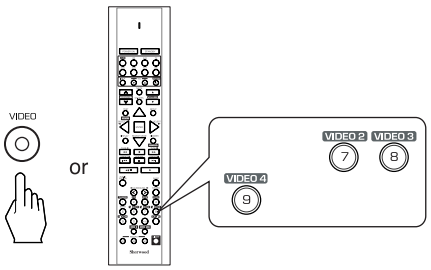
4. Start play on the VIDEO 2 and the CD respectively.

- The audio signal from the CD and the video signal from the VIDEO 2 will be dubbed and you can enjoy them on the TV set and from the speakers.

■ **Note :** Be sure to observe the order of the above steps 1 and 2.

Dubbing from video components onto VIDEO 1

1. Select the desired of VIDEO 2 ~ 4 as a recording source except VIDEO 1.



2. Start recording on the VIDEO 1.

3. Start play on the desired input.

- The audio and video signals from the desired input will be dubbed onto the VIDEO 1 and you can enjoy them on the TV set and from the speakers.

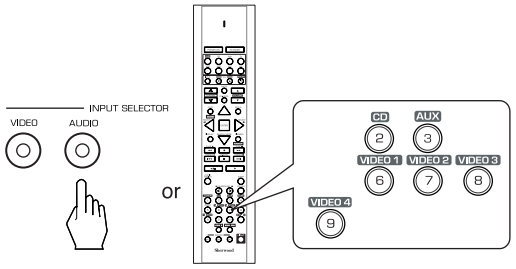
DIGITAL AUDIO RECORDING WITH MD RECORDER

- Only when the OPTICAL DIGITAL OUT of this receiver is connected to the OPTICAL DIGITAL IN of the MD recorder or CD recorder, you can enjoy high-quality sound of digital recording without converting the original signals. Refer to "CONNECTING VIDEO COMPONENTS", "CONNECTING AUDIO COMPONENTS" and "CONNECTING DIGITAL INS AND OUT" on pages 5~8 and the operating instructions of the MD recorder or CD recorder.

■ Notes:

- Depending on the digital audio signal format input into the HDMI IN connector, some digital signals cannot be output from the OPTICAL DIGITAL OUT jack.
- Digital recording is available for the digital audio program sources such as CDs, MDs, some DVDs, etc.
- In most DVDs and SACDs as well as some CDs, etc., digital recording may not be available depending on the signal format.
- There are some restrictions on recording digital signals. When making digital recordings, refer to the operating instructions of your digital recording equipment to know what restrictions are imposed.

1. Select the desired of CD, AUX, VIDEO 1~4 as a recording source.



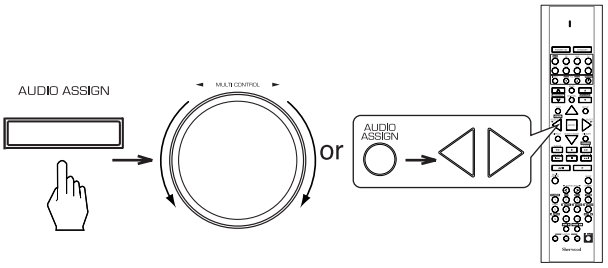
■ In case of recording the digital audio signal input into a HDMI IN connector

- Select the desired recording source to which the HDMI IN is connected and assigned and then perform the steps 3 and 4 (, but ignore the step 2).

■ Note :

- If the AUDIO MODE is set to the mode other than "HDMI" for the corresponding recording source on the INPUT SETUP menu, the digital audio signals will not be output and there will be no recording. (For details, refer to "When selecting the AUDIO MODE" on page 45.)

2. For digital recording, select the digital input as recording signal input.



■ Note :

- If the AUDIO MODE is set to the mode other than "DIGITAL" for the corresponding recording source on the INPUT SETUP menu, the digital audio signals from the selected digital input will not be output and there will be no recording. (For details, refer to "When CD, AUX, VIDEO 1~ 4 is selected as an input source" on page 23 and "When selecting the AUDIO MODE" on page 45.)

3. Start recording on the component connected to the OPTICAL DIGITAL OUT.

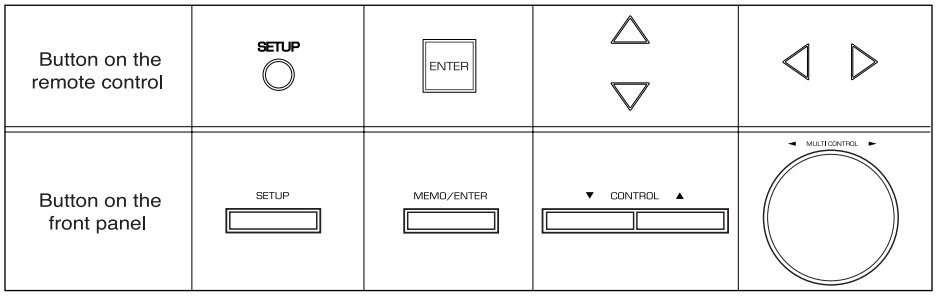
4. Start play on the desired input.

OSD Menu Settings

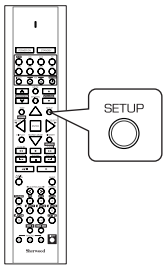
• The OSD (On-Screen Display) menu is a setting menu that is displayed on the monitor TV and allows you to perform the setup procedures easily. In most situations, you will only need to set this once during the installation and layout of your home theater, and it rarely needs to be changed later.
The OSD menu consists of 6 main menus ; system setup, input setup, speaker / room EQ setup, CH level setup, sound parameter and multi room setup. These menus are then divided up into various sub-menus.

■ **Notes:**
• The OSD menu and the momentary OSD cannot be displayed via the COMPONENT MONITOR OUT and the HDMI MONITOR OUT jacks.
• Depending on the VIDEO MODE setting and the video connections between this receiver and the video component, the OSD menu and the momentary OSD cannot be displayed via (COMPOSITE) MONITOR OUT jack, (For details, refer to "Relationship between the video input signal and the video output signal" on page 6.)

■ Navigating through the OSD menu
• The explanations here assume you are using the buttons on the remote control when performing the OSD menu operation. However, you can use the buttons on the front panel as well.
The buttons on the front panel correspond to those on the remote control as shown below.



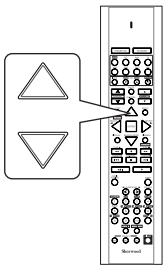
1. Turn the menu screen on.




```
        MAIN  MENU

>SYSTEM        SETUP
 INPUT         SETUP
 SPEAKER
 /ROOM EQ      SETUP
 CH  LEVEL     SETUP
 SOUND         PARAMETER
 MULTI ROOM    SETUP

 EXIT
```

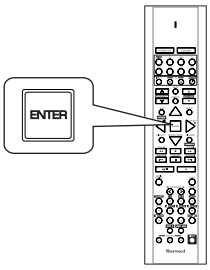
• The main menu will be shown.
• To turn the menu screen off, press this button again.

2. Select the desired menu using the CURSOR UP(▲)/DOWN(▼) buttons.



ENGLISH

3. Confirm your selection.



■ **When selecting the SYSTEM SETUP**

```
        SYSTEM  SETUP
>AMP  ASSIGN :  BACK←→ROOM2
  SUB W MODE :  NORMAL
  HDMI AUDIO OUT  :    OFF
  TONE  CONTROL  :    OFF
  CINEMA  EQ      :    OFF
  BACKGROUND     :  BLACK
  MOMENTARY OSD :    ON
  OSD  POSITION  ADJUST

  RETURN  TO  MAIN  MENU
```

40

■ **When selecting the INPUT SETUP**

```
        INPUT  SETUP
>VIDEO  1      CONFIG
  VIDEO  2      CONFIG
  VIDEO  3      CONFIG
  VIDEO  4      CONFIG
  CD            CONFIG
  TAPE          CONFIG
  AUX           CONFIG
  TUNER         CONFIG
  EXT . IN      CONFIG

  RETURN  TO  MAIN  MENU
```

44

■ **When selecting the SPEAKER /ROOM EQ SETUP**

```
   SPEAKER/R . EQ  SETUP

>AUTO  SETUP

  SPEAKER     CONFIG
  SPEAKER     DISTANCE
  SPEAKER     CROSSOVER
  ROOM EQ     SETUP


  RETURN  TO  MAIN  MENU
```

48

■ **When selecting the CH LEVEL SETUP**

```
     CH  LEVEL  SETUP
>MODE   :      CALIBRATE
  FRONT  LEFT      :      0dB
  CENTER           :      0dB
  FRONT  RIGHT     :      0dB
  SURR   RIGHT     :      0dB
  BACK/MULTI  R    :      0dB
  BACK/MULTI  L    :      0dB
  SURR  LEFT       :      0dB
  SUBWOOFER        :      0dB
  LFE  LEVEL  SETUP
  RETURN  TO  MAIN  MENU
```

55

■ **When selecting the SOUND PARAMETER**

```
       SOUND  PARAMETER

>NIGHT  MODE
  DOLBY  PLII MUSIC
  DOLBY  HEADPHONE
  DOLBY  VIRTUAL  SPEAKER




  RETURN  TO  MAIN  MENU
```

57

■ **When selecting the MULTI ROOM SETUP**

```
      MULTI  ROOM  SETUP

>ROOM  2      :    OFF
   INPUT      :    MAIN
   VOLUME     :    - - -




  RETURN  TO  MAIN  MENU
```

61

- For the setting details, see page in ⇨.
- Adjust the setting(s) in each setting category to your preference.
- When the SETUP button is pressed on a sub-menu, the menu screen will be turned off.

ENGLISH

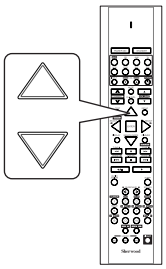
SETTING THE SYSTEM SETUP

```
        SYSTEM  SETUP
>AMP  ASSIGN :  BACK←→ROOM2
 SUB W MODE :  NORMAL
 HDMI AUDIO OUT  :    OFF
 TONE  CONTROL  :    OFF
 CINEMA  EQ          :    OFF
 BACKGROUND      :  BLACK
 MOMENTARY OSD :    ON
 OSD  POSITION  ADJUST

 RETURN  TO  MAIN  MENU
```

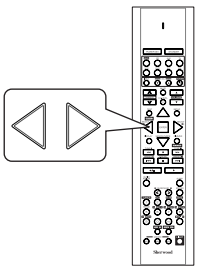
- AMP ASSIGN : To assign the surround back channels' power amplifier correctly depending on how to use the speakers.
- SUBWOOFER MODE : To select the desired subwoofer mode.
- HDMI AUDIO OUT : To output the digital audio signals from the HDMI MONITOR OUT connector.
- TONE CONTROL : To adjust the tone (bass and treble) as desired.
- CINEMA EQ : To select the desired cinema EQ mode.
- BACKGROUND : To select the desired background color of the momentary OSD and the OSD menu.
- MOMENTARY OSD : To turn on or off the OSD that shows the status corresponding to each operation momentarily.
- OSD POSITION ADJUST : To adjust the position of the momentary OSD and the OSD menu.

When selecting the items other than OSD POSITION ADJUST

1. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the desired item.



2. Press the CURSOR LEFT(◀)/RIGHT(▶) buttons to set the selected item as desired.



When selecting the AMP ASSIGN

- The surround back channels' power amplifier can drive the surround back speakers, the ROOM 2 speakers or the front bi-amp capable speakers. Depending on how to use the speakers, you should assign the power amplifier correctly. (For details, refer to "CONNECTING SPEAKERS" on page 9 and "CONNECTING ROOM 2 OUTS" on page 11.)

BACK ←→ ROOM 2 : When connecting this receiver to the surround back speakers and the ROOM 2 speakers both, the power amplifier automatically drives the surround back speakers or the ROOM 2 speakers depending on whether the ROOM 2 function is turned off or on.

↕

BI - AMP : To drive the front bi-amp capable speakers when connecting the FRONT and the SURROUND BACK/MULTI channels to them.

↕

SURR BACK : To drive the surround back speakers when connecting the SURROUND BACK/MULTI channels to them.

ROOM 2 : To drive the ROOM 2 speakers when connecting the ROOM 2 channels to them.

Continued

When selecting the SUBWOOFER MODE

• "SW PLUS＋" mode is valid only when "FRONT" and "CENTER" are set to "FULL RANGE" and "SUBWOOFER" is set to "YES" on the SPEAKER/ROOM EQ SETUP menu. (For details, refer to "SETTING THE SPEAKER/ ROOM EQ SETUP" on page 48.)

NORMAL : When the low frequency signals of channels set to "FULL RANGE" are reproduced from those channels only. In this mode, the low frequency signals that are reproduced from the subwoofer channel is only the low frequency signals of LFE (from the multi-channel sources that contains LFE (Low Frequency Effects) channel, also called the ".1" channel) and the channels set to the setting value other than "FULL RANGE".

↕

SW PLUS＋ : When the low frequency signals of channels set to "FULL RANGE" are reproduced simultaneously from those channels and the subwoofer channel.
In this mode, the low frequency range expands more uniformly through the room, but depending on the size and shape of the room, interference may result in a decrease of the actual volume of the low frequency range.

When selecting the HDMI AUDIO OUT

• The HDMI connection can carry uncompressed digital video signals and digital audio signals. Depending on whether these digital audio signals are output from the HDMI MONITOR OUT of this receiver or not, you should set the HDMI AUDIO OUT correctly.

OFF : Not to output the digital audio signals from the HDMI MONITOR OUT of this receiver, meaning these
↕ signals are heard from the speakers connected to this receiver.
ON : To output the digital audio signals, meaning these signals are heard from the speakers of your TV.

■ **Notes:**

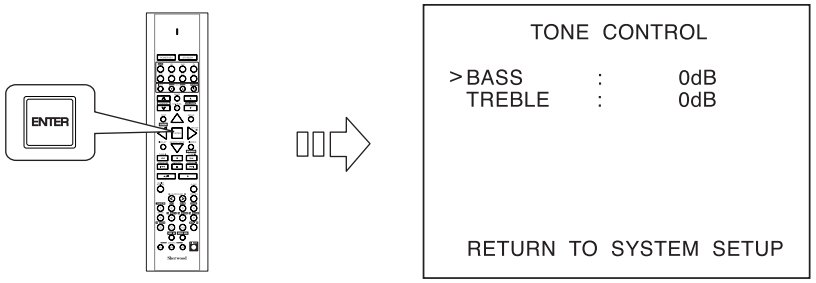
• When the HDMI AUDIO OUT is set to ON, no sound will be heard from the speakers connected to this receiver (except ROOM 2 speakers) even though any input source is selected.
• If your TV cannot support some digital audio formats, no sound may be heard from its speakers even when the HDMI AUDIO OUT is set to ON.

When selecting the TONE CONTROL

OFF : To listen to a program source without the tone effect. ("DIRECT" indicator lights up.)
↕
ON : To adjust the tone for your taste. ("DIRECT" indicator goes off.)

■ When the TONE CONTROL is set to ON to adjust the tone (bass and treble)

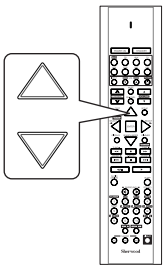
①. Press the ENTER button to enter the tone adjustment mode.



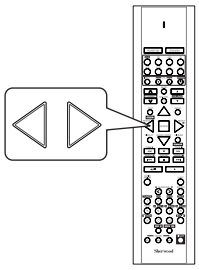
ENGLISH

Continued

②. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the desired tone mode.



③. Press the CURSOR LEFT(◀)/RIGHT(▶) buttons to adjust the selected tone as desired.



- The tone level can be adjusted within the range of -10 ~ +10 dB.
- In general, we recommend the bass and treble to be adjusted to 0 dB (flat level).
- Extreme settings at high volume may damage your speakers.
- To complete tone adjustment, repeat the above steps ② and ③.

When selecting the CINEMA EQ

OFF : To turn off the cinema EQ function.
↕
ON : To compensate for edgy or shrill movie sound tracks.

When selecting the BACKGROUND

BLACK : To display the black as the color background of the momentary OSD and the OSD menu.
↕
BLUE : To display the blue.

■ **Note :** Only when no video signals are input into this unit, the selected background color will be displayed.

When selecting the MOMENTARY OSD

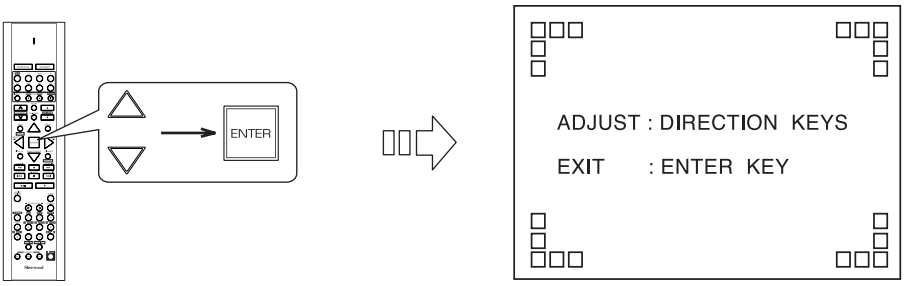
ON : To turn on the OSD function that shows the status corresponding to each operation on this unit
↕ momentarily.
OFF : To turn it off.

■ **Note** : The momentary OSD cannot be displayed via the COMPONENT MONITOR OUT and the HDMI MONITOR OUT jacks.

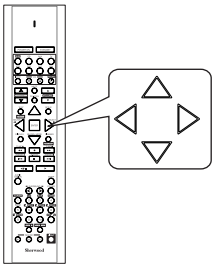
When selecting the OSD POSITION ADJUST

• You can adjust the position of the momentary OSD and the OSD menu that are displayed on the monitor TV.

1. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the OSD POSITION ADJUST, then press the ENTER button.



2. Press the CURSOR UP(▲)/DOWN(▼)/LEFT(◀)/RIGHT(▶) buttons to adjust the position of the momentary OSD and the OSD menu as desired.



ENGLISH

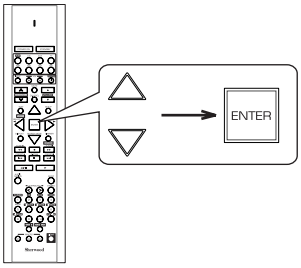
SETTING THE INPUT SETUP

```
        INPUT  SETUP
>VIDEO  1      CONFIG
 VIDEO  2      CONFIG
 VIDEO  3      CONFIG
 VIDEO  4      CONFIG
 CD            CONFIG
 TAPE          CONFIG
 AUX           CONFIG
 TUNER         CONFIG
 EXT . IN      CONFIG

 RETURN  TO  MAIN  MENU
```

• This menu allows you to make the various settings depending on how to use the input sources connected to this receiver.

When selecting the items other than NAME

1. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the desired input source, then press the ENTER button.



Example: When selecting the VIDEO 1

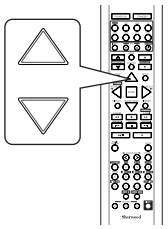
```
     VIDEO  1     CONFIG

>NAME          :   VIDEO   1
 HDMI ASSIGN   :   HDMI    1
 VIDEO ASSIGN  :   COMP    1
 VIDEO MODE    :   AUTO
 AUDIO ASSIGN  :   OPT     1
 AUDIO MODE    :   AUTO
                          Page 1
```

■ When selecting the menu of page 2 or page 1.

• Press the CURSOR UP(▲)/DOWN(▼) buttons to select "GO TO NEXT ~ ", then press the ENTER button.

```
AUTO SURROUND  :  OFF
AUD REMASTER   :  OFF
AV SYNC.       :  0  ms
DC TRIGGER     :  OFF
                          Page 2
```

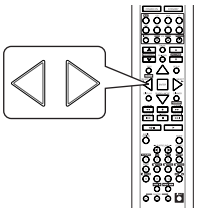
2. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the desired item.



■ Note :

• Depending on the input source, some items other than DC TRIGGER cannot be selected.

3. Press the CURSOR LEFT(◀)/RIGHT(▶) buttons to set the selected item as desired.



Continued

When selecting the HDMI ASSIGN

- You should assign the connected HDMI INs to the desired of VIDEO 1 ~ VIDEO 4.
  (For details, refer to "CONNECTING VIDEO COMPONENTS" on pages 5 ~ 6.)
- You can select HDMI 1 or HDMI 2.

■ **Note :**

- In such a case that a HDMI IN is assigned to two input sources or more, when these input sources are selected, the uncompressed digital video signals (and digital audio signals when the HDMI AUDIO OUT is set to ON) input into the same HDMI IN can be output from the HDMI MONITOR OUT of this receiver.

When selecting the VIDEO ASSIGN

- You should assign the connected COMPONENT VIDEO INs to the desired of VIDEO 1 ~ 4.
  (For details, refer to "CONNECTING VIDEO COMPONENTS" on pages 5 ~ 6.)
- You can select the desired of COMP 1 ~ 2.

■ **Note :**

- In such a case that a COMPONENT VIDEO IN is assigned to two input sources or more, when these input sources are selected, the component video signals can be viewed from the same COMPONENT VIDEO IN.

When selecting the VIDEO MODE

- You can select the video input signal to be output from the MONITOR OUTs.

AUTO : When there are multiple video input signals, the video input signals are detected and the video input signal to be output from the MONITOR OUTs is selected automatically in the following order :
↕
component video, S-video, composite video.

COMPOSITE : The signal that is input into the (COMPOSITE) VIDEO jack is always played. The composite video input signal is up-converted and output from the S-VIDEO MONITOR OUT jack.
↕

S-VIDEO : The signal that is input into the S-VIDEO jack is always played. The S-video input signal is down-converted and output from the (COMPOSITE) VIDEO MONITOR OUT jack.
↕

COMPONENT : The signals that are input into the COMPONENT jacks are always played.
Because video conversion is not performed, no video signals are output from the MONITOR OUT jacks when there are no video signals that are input into the COMPONENT jacks.

- For details, refer to "Relationship between the video input signal and the video output signal" on page 6.

■ **Note :**

- When selecting the VIDEO 4, S-VIDEO cannot be selected.

When selecting the AUDIO ASSIGN

- You should assign the connected DIGITAL INs to the desired of CD, AUX and VIDEO 1 ~ VIDEO 4.
  (For details, refer to "CONNECTING DIGITAL INS AND OUT" on page 8.)
- You can select the desired of OPT 1, OPT 2, COAX1 and COAX 2.

■ **Note :**

- In such a case that a DIGITAL IN is assigned to two input sources or more, when these input sources are selected, the digital audio signals can be heard from the same DIGITAL IN.

When selecting the AUDIO MODE

- You can select the desired audio input signal to be played.

■ **Notes :**

- Be sure to set the AUDIO MODE to the audio input which is connected and assigned to the selected input source.
- When the HDMI AUDIO OUT is set to ON, no sound will be heard from the speakers connected to this receiver (except ROOM 2 speakers).
- When the AUDIO MODE is set to HDMI, you should set the HDMI ASSIGN correctly. If not, "H1", "H2" (, meaning no digital audio signal input from it) or "Hd" (, meaning no HDMI assignment) flickers on the unit's display and no sound will be heard.
- When the AUDIO MODE is set to DIGITAL, you should set the AUDIO ASSIGN correctly. If not, "o1", "c1", etc.(, meaning no digital signal input from it) or "d" (, meaning no audio assignment) flickers on the unit's display and no sound will be heard.

AUTO : When there are multiple audio input signals, the audio input signals are detected and the audio input signal to be played is selected automatically in the priority order of them :
↕
HDMI audio > DIGITAL audio > ANALOG audio

HDMI : The signal that is input into the HDMI IN is always played.
↕

DIGITAL : The signal that is input into the OPTICAL or the COAXIAL DIGITAL IN is always played.
↕

ANALOG : The signal that is input into the analog AUDIO INs is always played.

Continued

ENGLISH

When selecting the AUTO SURROUND

• Depending on how to select a surround mode, you can select the auto surround mode or the manual surround mode.

ON (Auto surround mode) : The optimum surround mode will be automatically selected depending on the signal format being input.

↕

OFF (Manual surround mode) : You can select the desired of different surround modes selectable for the signal being input with using the MULTI CONTROL knob or the SURROUND MODE UP/DOWN (>/<) buttons. (For details, refer to "When selecting the manual surround mode with pressing the SURROUND MODE button on the front panel" on page 26.)

■ **Notes :**

• Even when the auto surround mode is selected and the same type of digital signal format is being input, the optimum surround mode may vary depending on whether the speaker type is set to "NO" or not.
• When the auto surround mode is selected, the surround modes other than the optimum surround mode cannot be selected.

When selecting the AUDIO REMASTER

• The remastering processes the input signal digitally and converts its digital sampling frequency to twice the current frequency (88.2/96 kHz) for a more detailed sound reproduction.

ON : To process the input signal digitally and to convert its sampling frequency to 88.2/96 kHz for a more
↕ detailed sound reproduction.
OFF : To turn off the remastering function.

■ **Note :**

• The remastering function have no effect on the input digital signal from the 88.2/96 kHz source or higher as well as the digital signal that is output from the OPTICAL DIGITAL OUT of this receiver.

When selecting the AV SYNC

• There may be a slight time delay between the video and audio signals in case that some video playback equipments may process the video signals later than the audio signals due to signal processing procedure, etc.. Should this happen, you can adjust the time delay of audio signals to synchronize the sound with the picture.
• The time delay can be adjusted within the range of 0 ~ 200 msec.

When selecting the DC TRIGGER

• To turn on the component connected to the DC TRIGGER OUT jack when this input source is selected, you should set the DC TRIGGER to ON for this input source.

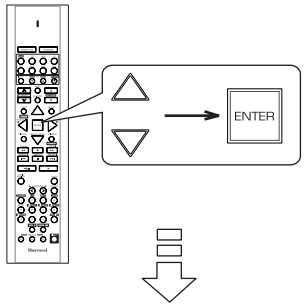
OFF : To turn off the DC trigger function.
↕
ON: To turn it on.

• For details, refer to "CONNECTING DC TRIGGER OUT" on page 8.

When selecting the NAME

- You can give names to the input sources other than tuner.
- Up to 7 characters can be entered for each name.

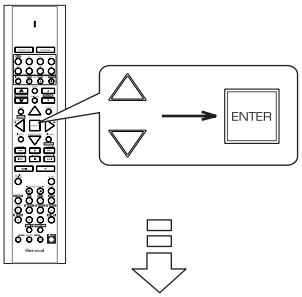
1. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the desired input source, then press the ENTER button.



Example: When selecting the VIDEO 1

```
      VIDEO 1     CONFIG

>NAME          :   VIDEO   1
  HDMI ASSIGN     : HDMI   1
  VIDEO ASSIGN    : COMP   1
  VIDEO MODE      : AUTO
  AUDIO ASSIGN    : OPT    1
  AUDIO MODE      : AUTO
```

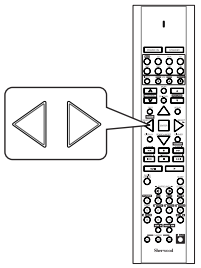
2. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the NAME, then press the ENTER button.




```
      VIDEO 1     CONFIG
>NAME          : VIDEO   1
```

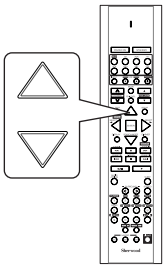
- The first digit flickers.

3. Press the CURSOR LEFT(◀)/ RIGHT(▶) buttons to select the desired digit.



- Then the selected digit will flicker.

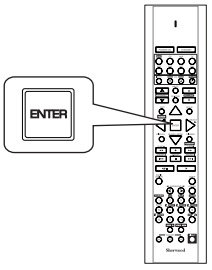
4. Press the CURSOR UP(▲)/DOWN(▼) buttons to enter the desired character on the flickering digit.



- You can enter the desired among blank, A ~ Z, a ~ z, 0 ~ 9, (,), ∗, +, , , -, ., /.

5. Repeat the above steps 3 and 4 to enter the desired characters on the rest of the digits.

6. Confirm your entry.



- The name is stored in the memory.

■ To resume its factory input source name.

- Make a blank on each digit and press the ENTER button.

ENGLISH

SETTING THE SPEAKER / ROOM EQ SETUP

- After you have installed this receiver and connected all the components, you should adjust the speaker settings for the optimum sound acoustics according to your environment and speaker layout.
- Even when you change speakers, speaker positions, or the layout of your listening environment, you should adjust the speaker settings, too.
- When performing the AUTO SETUP procedure, you need not perform the SPEAKER CONFIGURATION, SPEAKER DISTANCE, SPEAKER CROSSOVER and CH LEVEL SETUP procedures.

```
  SPEAKER/R . EQ  SETUP

>AUTO  SETUP

  SPEAKER    CONFIG
  SPEAKER    DISTANCE
  SPEAKER    CROSSOVER
  ROOM EQ    SETUP

  RETURN  TO  MAIN  MENU
```

- AUTO SETUP : To set the speaker setup and channel level setup automatically.
- SPEAKER CONFIGURATION : To adjust the speakers depending on whether they are connected or not.
- SPEAKER DISTANCE: To select the distance between the listening position and each speaker to set the delay time automatically for optimum surround playback.
- SPEAKER CROSSOVER : To select the desired crossover frequency.
- ROOM EQ SETUP : To adjust the room EQ as desired.

When selecting the AUTO SETUP

- Auto Setup lets you avoid troublesome listening-based speaker setup and achieve good surround sound. Auto Setup has the feature that provides the optimum listening environment at the listening position in your room, where there are often multiple listeners viewing programs together.
  You should connect the supplied microphone to the SETUP MIC jack so that this receiver can analyze the information from a series of test tones emitted from speakers at the listening position and can adjust the configuration, distance, sound level, crossover frequency and frequency response of each speaker automatically.
- If you want to personalize your speaker setup and channel level setup by making the settings manually, perform the "When selecting the SPEAKER CONFIGURATION" on page 50, "When selecting the SPEAKER DISTANCE" on page 51, "When selecting the SPEAKER CROSSOVER" on page 52, "Adjusting each channel level with test tone" on page 27 and "Adjusting the current channel level" on page 28.
- After the auto setup has been completed, set the room EQ as desired. (For details, refer to "When selecting the ROOM EQ SETUP" on page 53.)

■ Preparations

①. Check that the speakers are securely connected to this receiver.
- If your subwoofer has adjustable volume and crossover frequency, set the volume halfway and set the crossover frequency to the maximum or the low pass filter off.

②. Connect the supplied microphone to the SETUP MIC jack on the front panel.(For details, refer to "SETUP MIC JACK" on page 14.)

■ Notes :

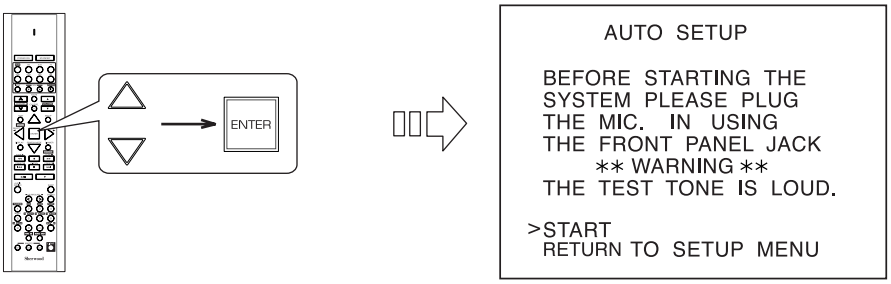
- Because the microphone for Auto Setup is designed for use with this receiver, to use the auto setup function, do not use a microphone other than the one supplied with this receiver.
- After you have completed the auto setup procedure, disconnect the microphone.

1. Place the microphone on a flat level surface at the listening position.

- If possible, use a tripod, etc. to attach the microphone at the same height as your ears would be when you are seated in your listening position.
- Ensure there are no obstacles between the speakers and the microphone.

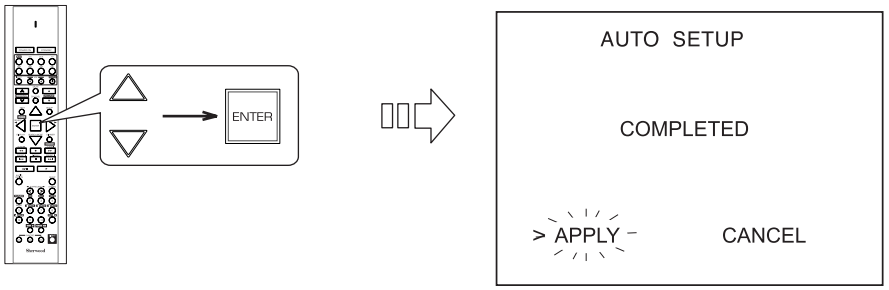
Continued

2. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the AUTO SETUP, then press the ENTER button.



3. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the START, then press the ENTER button.

When the auto setup has been completed.

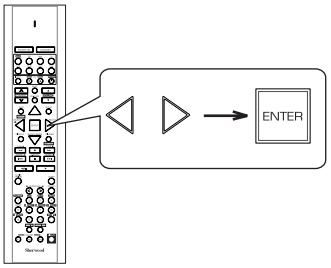


- Loud test tones are output successively and then if a series of auto setup procedure has been completed, "COMPLETED" will be displayed.
- To stop the auto setup procedure while performing it, press the ENTER button.
  In such a case that the auto setup procedure is stopped before "COMPLETED" is displayed, the results of each adjustment may not be memorized.
- If there may be a problem with speaker or microphone connection, error message will be displayed. In this case, turn off the power, check the connection and then retry the auto setup procedure.

■ Notes :

- Before starting auto setup, be sure not to set the HDMI AUDIO OUT to ON.
- Because the test tones are loud, ensure there no infants or small children in the room.
- For best results, ensure the room is as quiet as possible during the auto setup procedure.
  If there is too much ambient noise, the results may not be satisfactory.

4. To memorize the results, press the CURSOR LEFT(◀)/ RIGHT(▶) buttons to select the APPLY, then press the ENTER button.

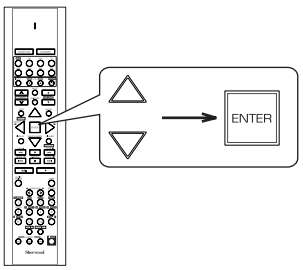


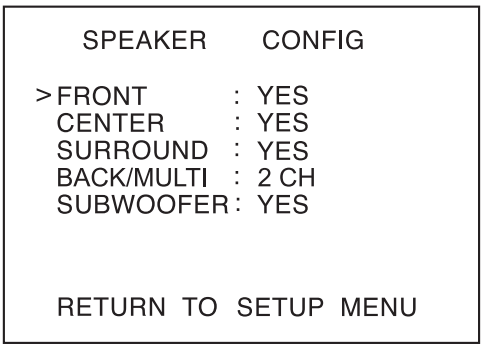
- Then the results are memorized and the SPEAKER/ ROOM EQ SETUP menu is displayed.
- Each time the CURSOR LEFT(◀)/ RIGHT(▶) buttons are pressed, the APPLY or the CANCEL is selected.
- When the CANCEL is selected, the results are not memorized.
- Check the results on each setup menu(SPEAKER CONFIGURATION menu on page 50, SPEAKER DISTANCE menu on page 51, SPEAKER CROSSOVER menu on page 52 and CH LEVEL SETUP menu for "CALIBRATE" mode on page 55).
- If the results are not satisfactory, you can retry the auto setup procedure or personalize your speaker setup and channel level setup by making the settings manually. (For details, refer to "When selecting the SPEAKER CONFIGURATION" on page 50, "When selecting the SPEAKER DISTANCE" on page 51, "When selecting the SPEAKER CROSSOVER" on page 52, "Adjusting each channel level with test tone" on page 27 and "Adjusting the current channel level" on page 28.)

ENGLISH

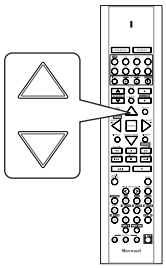
When selecting the SPEAKER CONFIGURATION

1. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the SPEAKER CONFIGURATION, then press the ENTER button.

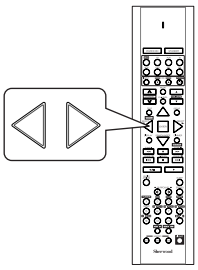




2. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the desired speaker.



3. Press the CURSOR LEFT(◀)/ RIGHT(▶) buttons to set the selected speaker as desired.



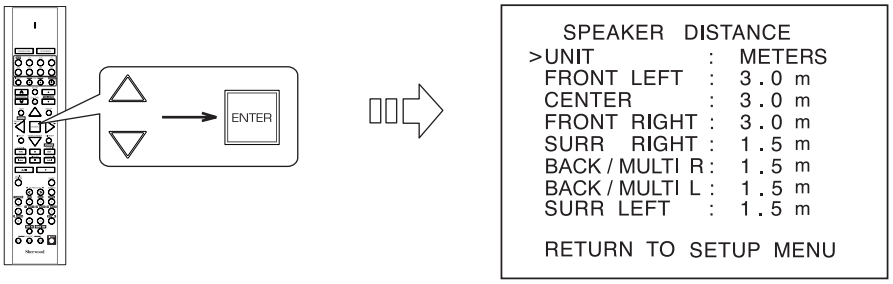
YES/NO: Select the desired depending on whether the speakers are connected or not.
2CH/1CH: Select the desired depending on the number of speakers connected to SURROUND BACK/ MULTI channels.

■**Notes** :
- When speakers are not set to "NO", you should set their distances from listening position and crossover frequencies according to their frequency characteristics. (For details, refer to "When selecting the SPEAKER DISTANCE" on page 51 and "When selecting the SPEAKER CROSSOVER" on page 52.)
- When the "SURROUND" is set to "NO", "BACK/MULTI" cannot be set to "2CH" or "1CH".
- When the surround back channels' power amplifier is assigned to "BI-AMP" or "ROOM 2", the "BACK/MULTI" cannot be selected. (For details, refer to "When selecting the AMP ASSIGN" on page 40.)

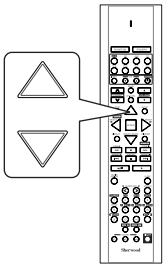
4. Repeat the above steps 2 and 3 until the speakers are all set as desired.

When selecting the SPEAKER DISTANCE

1. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the SPEAKER DISTANCE, then press the ENTER button.

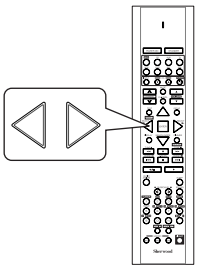


2. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the desired item.



■**Note :**
- You cannot select the subwoofer and the speakers set to "NO".

3. Press the CURSOR LEFT(◀)/RIGHT(▶) buttons to set the selected item as desired.



■When selecting the desired unit
- You can select either METERS or FEET.
- Once a unit is selected, the distances are automatically changed in the selected unit.

■When setting the distance
- You can set the distance within the range of 0.1 ~ 9.0 meters in 0.1 meter intervals (or 0.5 ~ 30 feet in 0.5 feet intervals).

4. Repeat the above steps 2 and 3 until the distances are all set as desired.

■**About the speaker distance**

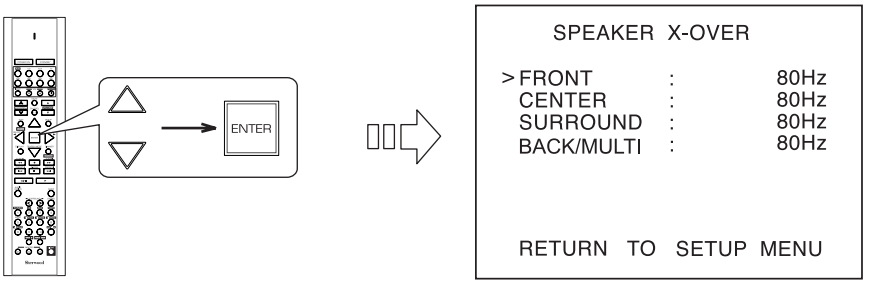
When enjoying multi-channel surround playback with Dolby Digital and DTS sources, etc., it is ideal that the center, surround and surround back speakers should be the same distance from the main listening position as the front speakers. By entering the distance between the listening position and each speaker, the delay times of center, surround and surround back speakers are automatically adjusted to create an ideal listening environment virtually as if the center, surround and surround back speakers were at their ideal locations respectively.

ENGLISH

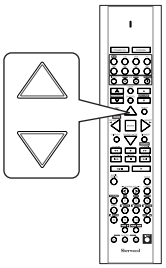
When selecting the SPEAKER CROSSOVER

- Set the crossover frequency according to the frequency characteristics of the speakers connected. (For details on the frequency characteristics, refer to the operating instructions of the speakers.)
- If the frequency range of your speaker is 100 Hz ~ 20 kHz, the crossover frequency should be set to 100 Hz (or slightly higher).
- The low frequencies below the crossover frequency are to output from subwoofer or the speakers which are set to "FULL RANGE" (when not using a subwoofer).

1. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the SPEAKER CROSSOVER, then press the ENTER button.

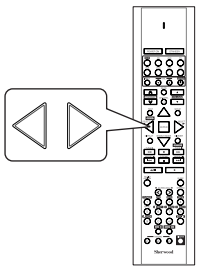


2. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the desired speaker.



■**Note :**
- You cannot select the subwoofer and the speakers set to "NO".

3. Press the CURSOR LEFT(◀)/RIGHT(▶) buttons to set the crossover frequency as desired.



- You can adjust the crossover frequency within the range of 40 ~ 250 Hz.
- Select "FULL RANGE" when the selected speaker can fully reproduce the low frequencies below 40 Hz.

4. Repeat the above steps 2 and 3 until the crossover frequencies are all set as desired.

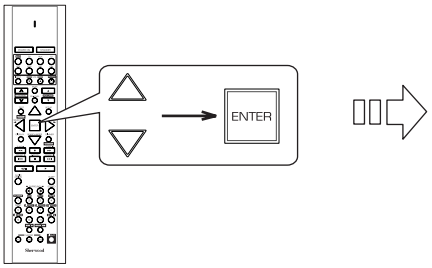
When selecting the ROOM EQ SETUP

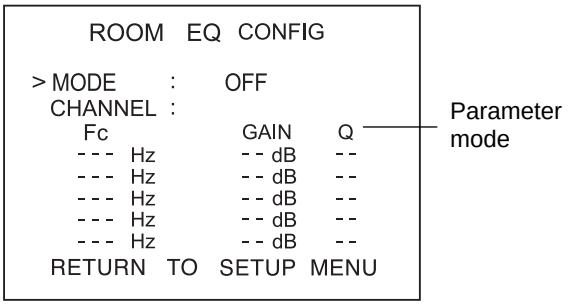
- The room EQ is a kind of room equalizer for your speakers. According to the acoustic characteristics of your room measured by the auto setup, the room EQ automatically adjusts the frequency response of your speakers.
- If you use different brands or sizes of speakers for some channels or have a room with unique acoustic characteristics, such as walls, furniture, and the dimensions or the shape of the room, we recommend using the room EQ.

■ **Note :**

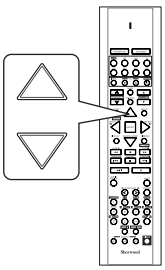
- To use the room EQ, first you should finish measuring the acoustic characteristics of your room performing the auto setup.
  (For details, refer to "When selecting the AUTO SETUP" on page 48.)

1. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the ROOM EQ SETUP, then press the ENTER button.

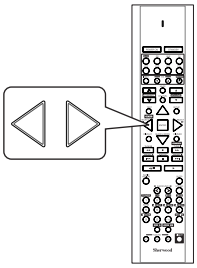




2. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the MODE.



3. Press the CURSOR LEFT(◀)/RIGHT(▶) buttons to select the desired room EQ mode.



OFF : When turning off the room EQ.

FLAT : To adjust the frequency response of all speakers to the flattest response. This mode is suitable for multi channel music surround sound sources.

FRONT : To adjust the frequency response of the surround and the surround back speakers to match the characteristics of the front speakers.

USER : To adjust the tonal quality of the different speakers (except the subwoofer) manually.

■ **Note :**

- Only when the auto setup has been performed, the FLAT and the FRONT modes can be selected.

Continued

■ When selecting the USER mode

- You can adjust the parametric EQ settings to optimize the frequency characteristics of this unit's parametric equalizer to match the acoustic characteristics of your room.
- The parametric equalizer uses a combination of the following three parameters to provide highly precise adjustment of the frequency characteristics.

※ Frequency
- This unit has 5 equalizer bands for each channel. You can adjust the specified frequency bands each within the following frequency ranges :
  20 Hz ~ 120 Hz, 130Hz ~ 500 Hz, 550 Hz ~ 1.9 kHz, 2 kHz ~ 7.5 kHz, 8 kHz ~ 20 kHz

※ Gain
- This parameter is adjustable within the range of -24 ~ +24 dB in 1 dB intervals.

※ Q factor
- The width of the specified frequency band is referred to as the Q factor. This parameter is adjustable within the range of 0 ~ 24 in 1 intervals.

■ Notes :

- When selecting the mode other than "USER" mode, you cannot select the EQ parameters for each channel.
- You cannot select the channel of the subwoofer and the speakers set to "NO".

①. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the CHANNEL, then press the CURSOR LEFT(◀)/RIGHT(▶) buttons to select the desired channel.

②. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the parameter mode, then press the CURSOR LEFT(◀)/RIGHT(▶) buttons to select the Fc (Frequency) mode.

③. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the desired frequency band, then press the CURSOR LEFT(◀)/RIGHT(▶) buttons to select the desired frequency.

④. Repeat the above step ③ until the desired frequency is selected for each frequency band.

⑤. Repeat the above steps ② ~ ④ to adjust the gain of each specified frequency band.

⑥. Repeat the above steps ② ~ ④ to adjust the Q factor of each specified frequency band.

⑦. Repeat the above steps ① ~ ⑥ until the EQ parameters of other channels are all adjusted as desired.

ENGLISH

SETTING THE CH LEVEL SETUP

```
     CH  LEVEL  SETUP
>MODE   :      CALIBRATE
  FRONT LEFT     :      0dB
  CENTER         :      0dB
  FRONT RIGHT    :      0dB
  SURR  RIGHT    :      0dB
  BACK/MULTI  R  :      0dB
  BACK/MULTI  L  :      0dB
  SURR LEFT      :      0dB
  SUBWOOFER      :      0dB
  LFE  LEVEL  SETUP
  RETURN TO MAIN  MENU
```

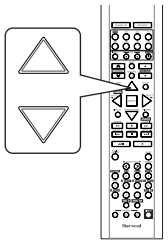
Memory mode

■ **Note :**
• Depending on the speaker settings("NO", etc.), some channels cannot be selected.

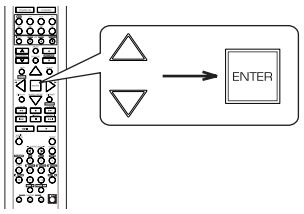
Adjusting the current channel level

• You can adjust the current channel levels as desired. These adjusted levels are just memorized into user's memory("CALIBRATE"), not into preset memory("REFERENCE 1", "REFERENCE 2").
• After adjusting each channel level with test tone, adjust the channel levels either according to the program sources or to suit your tastes.(For details, refer to "Adjusting each channel level with test tone" on page 27.)

1. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the desired channel.



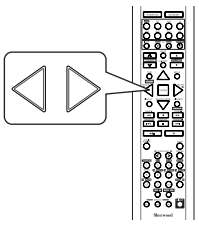
■ When adjusting the LFE LEVEL
①. Press the CURSOR UP(▲)/DOWN(▼)buttons to select the LFE LEVEL SETUP, then press the ENTER button.




```
     LFE  LEVEL  SETUP

>DOLBY  DIGITAL  :      0dB
  DTS            :      0dB
```

②. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the desired program source.

2. Press the CURSOR LEFT(◀)/RIGHT(▶) buttons to adjust the level of the selected channel or program source's LFE as desired.



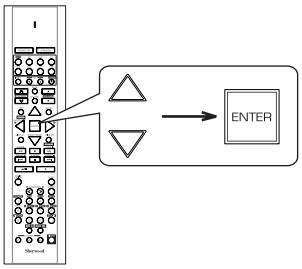
• The LFE level can be adjusted within the range of -10 ~ 0 dB and other channel levels within the range of -15 ~ +15 dB
• In general, we recommend the LFE level to be adjusted to 0 dB.(However, the recommended LFE level for some early DTS software is -10 dB.) If the recommended levels seem too high, lower setting as necessary.

3. Repeat the above steps 1 and 2 to adjust each channel level.

Memorizing the adjusted channel levels

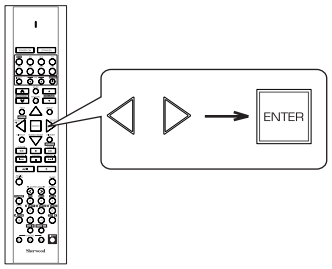
• You can memorize the adjusted channel levels into preset memory("REFERENCE 1", "REFERENCE 2") and recall the memorized whenever you want.

1. After performing the steps 1 ~ 3 in "Adjusting the current channel level" procedure on page 55, press the CURSOR UP(▲)/DOWN(▼) buttons to select a channel (, not the MODE (memory mode) and the LFE LEVEL SETUP), then press the ENTER button.



• The "REFERENCE 1" indication flickers.

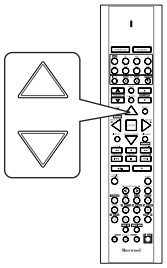
2. Press the CURSOR LEFT(◀)/RIGHT(▶) buttons to select the desired preset memory, then press the ENTER button.



• Each time the CURSOR LEFT(◀) or RIGHT(▶) button is pressed, "REFERENCE 1" or "REFERENCE 2" is selected.
• The adjusted channel levels have now been memorized into the selected memory.

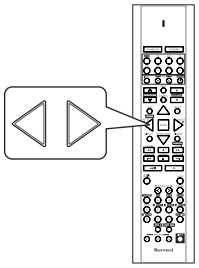
Recalling the memorized channel levels

1. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the MODE(memory mode).



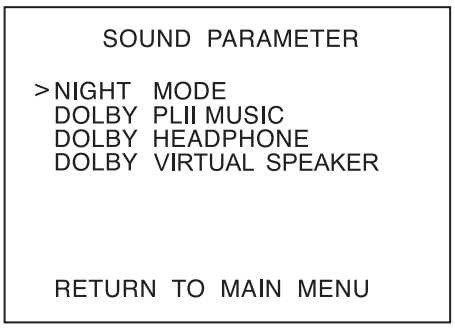
• "CALIBRATE" may be displayed instead of "REFERENCE 1" or "REFERENCE 2".

2. Press the CURSOR LEFT(◀)/RIGHT(▶) buttons to select the desired one of REFERENCE 1 and REFERENCE 2.



• Then the channel levels memorized into the selected preset memory are recalled.

SETTING THE SOUND PARAMETER



- NIGHT MODE : To adjust the dynamic range compression that makes faint sound easier to hear at low volume levels.
- DOLBY PLII MUSIC : To adjust the various surround parameters for optimum surround effect.
- DOLBY HEADPHONE : To select the desired listening mode for Dolby Headphone mode.
- DOLBY VIRTUAL SPEAKER : To select the speaker layout to be used actually for each Dolby Virtual Speaker mode.

ENGLISH

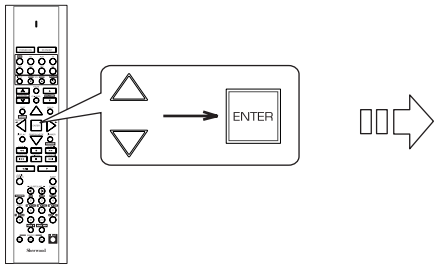
When selecting the NIGHT MODE

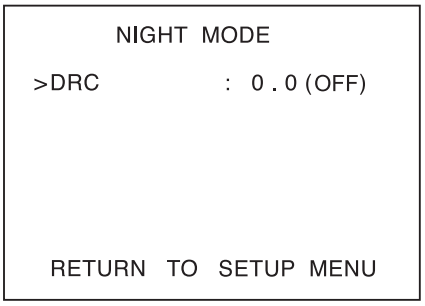
- This function compresses the dynamic range of previously specified parts of the Dolby Digital sound track (with extremely high volume) to minimize the difference in volume between the specified and non-specified parts.
  This makes it easy to hear all of the sound track when watching movies at night at low levels.

■ **Notes:**

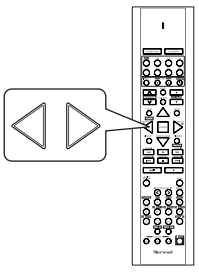
- The night mode setting is valid only when the digital signals from the Dolby Digital program source are being input.
- In some Dolby Digital softwares, the night mode setting may not be valid.

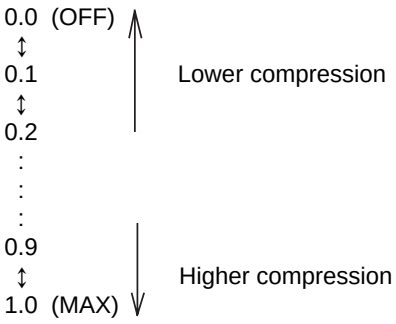
1. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the NIGHT MODE, then press the ENTER button.





2. Press the CURSOR LEFT(◀)/ RIGHT(▶) buttons to adjust the dynamic range compression as desired.





ENGLISH

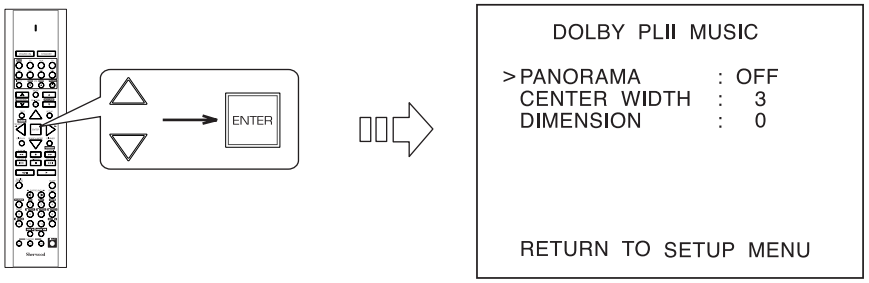
When selecting the DOLBY PLII MUSIC

• You can adjust the various surround parameters for optimum surround effect.

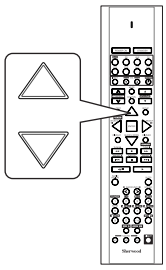
■**Note:**

• The parameter settings are valid only when listening in either Dolby Pro Logic II Music mode or the Dolby Pro Logic IIx Music mode.

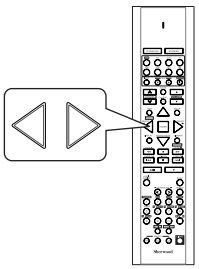
1. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the DOLBY PLII MUSIC, then press the ENTER button.



2. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the desired parameter.



3. Press the CURSOR LEFT(◀)/ RIGHT(▶) buttons to adjust the selected parameter as desired.



■**When selecting the PANORAMA mode**
This mode extends the front stereo image to include the surround speakers for an exciting "wraparound" effect with side wall imaging. Select "OFF" or "ON"(default value:OFF).

■**When selecting the CENTER WIDTH control**
This adjusts the center image so it may be heard only from the center speaker, only from the left/right speakers as a phantom image, or from all three front speakers to varying degrees. The control can be set in 8 steps from 0 to 7 (default value : 3).

■**When selecting the DIMENSION control**
This gradually adjusts the soundfield either towards the front or towards the rear. The control can be set in 7 steps from -3 to +3(default value : 0).

4. Repeat the above steps 2 and 3 to adjust other parameters.

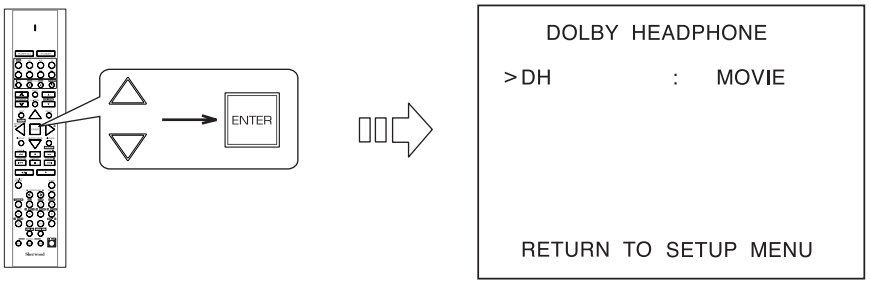
When selecting the DOLBY HEADPHONE

• You can select the desired listening mode for Dolby Headphone mode.

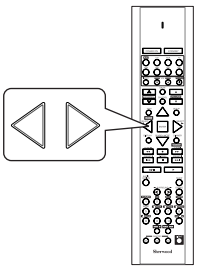
■ **Note:**

• The listening mode setting is valid only when playing analog stereo, PCM 2 channel or Dolby Digital 2 channel source.

1. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the DOLBY HEADPHONE, then press the ENTER button.



2. Press the CURSOR LEFT(◀)/ RIGHT(▶) buttons to select the desired listening mode.



MOVIE : This provides the surround effect suitable for movie sources.

MUSIC 1 : This provides the surround effect suitable for music sources.

MUSIC 2 : This provides less surround effect compared to MUSIC 1 mode.

ENGLISH

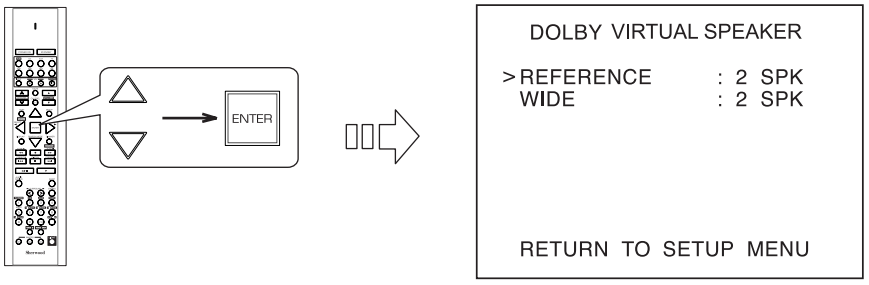
When selecting the DOLBY VIRTUAL SPEAKER

• You can select the speaker layout to be used actually for each Dolby Virtual Speaker mode.

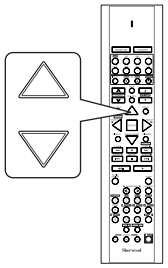
■**Note:**

• The speaker layout settings are valid only when listening in a Dolby Virtual Speaker mode.

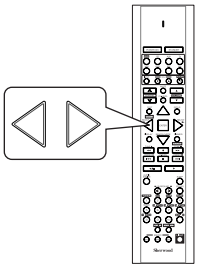
1. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the DOLBY VIRTUAL SPEAKER, then press the ENTER button.



2. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the desired Dolby Virtual Speaker mode.



3. Press the CURSOR LEFT(◀)/RIGHT(▶) buttons to select the desired speaker layout.



■When selecting the Dolby Virtual Speaker Reference mode

2 SPK : When using 2 front speakers only.
↕
3 SPK : When using 2 front and center speakers.

■When selecting the Dolby Virtual Speaker Wide mode

2 SPK : When using 2 front speakers only.
↕
3 SPK : When using 2 front and center speakers.
↕
4 SPK : When using 2 front and 2 surround speakers.
↕
5 SPK : When using 2 front, center and 2 surround speakers.

■**Note:**

• When the speakers are set to "NO", the corresponding speaker layouts cannot be selected.

4. Repeat the above steps 2 and 3 to select the desired speaker layout for another Dolby Virtual Speaker mode.

SETTING THE MULTI ROOM SETUP

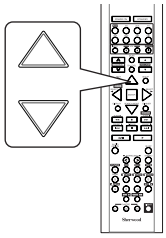
• The ROOM 2 function allows enjoying one source in the main room while playing another in a different room at the same time.

```
      MULTI  ROOM  SETUP

>ROOM 2      :   OFF
  INPUT      :   MAIN
  VOLUME     :   - - -




  RETURN  TO  MAIN  MENU
```

• ROOM 2 : To turn on or off the ROOM 2 function.
• INPUT : To select the desired ROOM 2 source.
• VOLUME : To adjust the volume on the power amplifier assigned to "BACK ← → ROOM 2" or "ROOM 2".

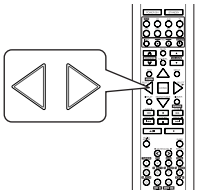
■ **Notes:**
• The analog signals from the EXTERNAL INs and the digital signals cannot be output to the different room, meaning no playback in a different room.
• You cannot play the ROOM 2 source in any surround mode.

1. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the desired item.



■ **Note:**
• The VOLUME cannot be adjusted when the AMP ASSIGN is assigned to "BI-AMP" or "SURR BACK". (For details, refer to "When selecting the AMP ASSIGN" on page 40.)

2. Press the CURSOR LEFT(◀)/RIGHT(▶) buttons to set the selected item as desired.



When selecting the ROOM 2

OFF : To turn off the ROOM 2 function.
↕
ON : To turn it on.

■ **Notes:**
• When the ROOM 2 is set to OFF, the INPUT and the VOLUME cannot be selected.
• When you do not use the ROOM 2 function, set the ROOM 2 to OFF to save electricity.

When selecting the INPUT

• You can select the desired among MAIN source, TUNER, CD, AUX, TAPE, VIDEO 1 ~ VIDEO 4 as a ROOM 2 source.

■ **Note:**
• When the EXTERNAL IN is selected as a main input, if the MAIN source is selected as a ROOM 2 input, no audio signal can be heard in the different room (ROOM 2).

When selecting the VOLUME

• You can adjust the volume on the power amplifier assigned to "BACK ← → ROOM 2" or "ROOM 2" when the ROOM 2 speaker terminals are connected to the speakers in a different room.

■ **Note:**
• You can adjust the VOLUME only when the surround back channels' power amplifier is assigned to "BACK ← → ROOM 2" or "ROOM 2". (For details, refer to "When selecting the AMP ASSIGN" on page 40.)

Troubleshooting Guide

If a fault occurs, run through the table below before taking your receiver for repair.
If the fault persists, attempt to solve it by switching the receiver off and on again. If this fails to resolve the situation, consult your dealer. Under no circumstances should you attempt to repair the receiver yourself. This could void the warranty.

PROBLEM	POSSIBLE CAUSE	REMEDY
No power	• The AC input cord is disconnected. • Poor connection at AC wall outlet or the outlet is dead or off.	• Connect cord securely. • Check the outlet using a lamp or another appliance.
No sound	• The speaker wires are disconnected. • The master volume is adjusted too low. • The MUTE button is pressed to ON. • Incorrect selection of input source. • Incorrect connections between the components. • The HDMI AUDIO OUT is set to ON. • The settings related to audio are set incorrectly.	• Check the speaker connections. • Adjust the master volume. • Press the MUTE button to cancel the muting effect. • Select the desired input source correctly. • Make connections correctly. • Set it to OFF. (For details, refer to "When selecting the HDMI AUDIO OUT" on page 41.) • Set the settings correctly. (For details, refer to "SETTING THE INPUT SETUP" on page 44.)
No sound from the surround speakers	• Surround mode is switched off(stereo mode). • Master volume and surround level are too low. • Monaural source is used. • Surround speaker setting is "NO".	• Select a surround mode. • Adjust master volume and surround level. • Select a stereo or surround source. • Select the desired surround speaker setting.
No sound from the center speaker	• Dolby Virtual Speaker, stereo mode, etc is selected. • Center speaker setting is "NO". • Master volume and center level are too low.	• Select the desired surround mode. • Select the desired center speaker setting. • Adjust master volume and center level.
No sound from the surround back speakers	• The input signal format or the current surround mode cannot support the 7.1(or 6.1) surround. • The surround back channels' power amplifier is assigned to "BI-AMP" or "ROOM 2". • Master volume and surround back level are too low. • Surround back speaker setting is "NO".	• Under the proper situations, perform the 7.1(or 6.1) surround playback.(For details, refer to "ENJOYING SURROUND SOUND" on page 26.) • Assign the power amplifier to the surround back channels.(For details, refer to "When selecting the AMP ASSIGN"on page 40.) • Adjust master volume and surround back level. • Select the desired surround back speaker setting.
No picture	• Video connections between this unit and the monitor TV are not made correctly. • Incorrect selection of input source on the monitor TV. • The settings related to video are set incorrectly.	• Make proper video connections. • Select the input source correctly. • Set the settings correctly. (For details, refer to "SETTING THE INPUT SETUP" on page 44.)
No picture with an HDMI connection	• HDMI connection between this unit and the monitor TV are not made correctly. • The monitor TV or other equipments do not support HDCP.	• Make proper HDMI connection. • This unit will not output video signal unless the connected equipments supports HDCP.
Stations cannot be received	• No antenna is connected. • The desired station frequency is not tuned in. • Antenna is in wrong position.	• Connect an antenna. • Tune in the desired station frequency. • Move antenna and retry tuning.
Preset stations cannot be received	• An incorrect station frequency has been memorized. • The memorized stations are cleared.	• Memorize the correct station frequency. • Memorize the stations again.
Poor FM reception	• No antenna is connected. • The antenna is not positioned for the best reception. • Weak signals.	• Connect an antenna. • Change the position of the antenna. • Install an outdoor FM antenna.
Continuous or intermittent hissing noise during AM reception, especially at night.	• Noise is caused by motors, fluorescent lamps or lightning, etc.	• Keep the receiver away from noise sources. • Install an outdoor AM antenna.
Remote control unit does not operate.	• Batteries are not loaded or exhausted. • The remote sensor is obstructed.	• Replace the batteries. • Remove the obstacle.
OSD function is not available.	• Video connections between this unit and the monitor TV are not made correctly.	• Make proper video connections.

Specifications

ENGLISH

■ AMPLIFIER SECTION
- Power output, stereo mode, 6 Ω, THD 1.0 %, 40 Hz~20 kHz | **2 × 100 W**
- Total harmonic distortion, at -3 dB, 6 Ω, 1 kHz | **0.05%**
- Intermodulation distortion
  60 Hz : 7 kHz= 4 : 1 SMPTE, 6 Ω, 95 W | **0.05%**
- Input sensitivity/impedance
  Line (CD, TAPE, VIDEO) | **300 mV/47kΩ**
- Signal to noise ratio, IHF "A" weighted
  Line (CD, TAPE, VIDEO) | **100 dB**
- Frequency response
  Line (CD, TAPE, VIDEO), 10 Hz ~ 100 kHz | **+0, -3 dB**
- Output level
  ROOM 2 OUT, 2.2 kΩ | **300 mV**
- Bass/Treble control, 100 Hz/10 kHz | ±**10 dB**
- Surround mode, only channel driven
  Front power output, 6 Ω, 1 kHz, THD 1.0 % | **110W/110W**
  Center power output, 6 Ω, 1 kHz, THD 1.0 % | **110W**
  Surround power output, 6 Ω, 1 kHz, THD 1.0 % | **110W/110W**
  Surround back (/MULTI) / ROOM 2 power output, 6 Ω, 1 kHz, THD 1.0 % | **110W/110W**

■ DIGITAL AUDIO SECTION
- Sampling frequency | **32, 44.1, 48, 96 kHz**
- Digital input level
  Coaxial, 75 Ω | **0.5 Vp-p**
  Optical, 660 nm | **-15 ~ -21 dBm**

■ VIDEO SECTION
- Video format | **PAL**
- Input sensitivity(=Output level), 75 Ω
  Video (Composite(normal)) | **1 Vp-p**
  S-Video (luminance signal) | **1 Vp-p**
  (chrominance signal) | **0.286 Vp-p**
  Component video (R-Y signal) | **0.5 Vp-p**
  (B-Y signal) | **0.5 Vp-p**
  (Y signal) | **1.0 Vp-p**
- HDMI connector | **19 pin**

■ FM TUNER SECTION
- Tuning frequency range | **87.5~108 MHz**
- Usable sensitivity, THD 3%, S/N 26 dB | **12.8 dBf**
- 46 dB quieting sensitivity, mono/stereo | **20.2 / 45.3 dBf**
- Signal to noise ratio, 65 dBf, mono/stereo | **70 / 65 dB**
- Total harmonic distortion, 65 dBf,1 kHz, mono/stereo | **0.5 / 0.8 %**
- Frequency response, 30 Hz~15 kHz | ±**3 dB**
- Stereo separation, 1 kHz | **32 dB**
- Capture ratio | **4.0 dB**
- IF rejection ratio | **60 dB**

■ AM TUNER SECTION
- Tuning frequency range | **522~1611 kHz**
- Usable sensitivity | **500 µV/m**
- Signal to noise ratio | **40 dB**
- Selectivity | **25 dB**

■ GENERAL
- Power supply | **230 V ~ 50 Hz**
- Power consumption | **370 W**
- Switched AC outlet | **TOTAL 100 W (0.43 A) max.**
- Dimensions (W × H × D, including protruding parts) | **440 × 141 × 370 mm**(**17-3/8 × 5-1/2 × 14-1/2 inches**)
- Weight (Net) | **10.1 kg (22.3 lbs)**

Note: Design and specifications are subject to change without notice for improvements.

Setup Code Table

TV

ENGLISH

ADMIRAL	050	134				
AKAI	093	049	123			
ALBA	068					
ALBIRAL	116					
ALCATEL	022					
AMSTRAD	000	021				
ANAM	155	156	157			
ARC EN CIEL	028	039	043	145	081	
ARISTONA	099	049	050	019	142	149
	078					
ARTHUR MARTIN	053	139	117	120	122	123
	125	128				
ASA	050	055	057	113	134	
ATLANTIC	099	111				
AUDIOSONIC	054					
AUSIND	053					
AUTOVOX	099	144	055	019	057	069
BAIRD	083					
BASICLINE	006					
BAUR	011					
BEKO	023	049				
BLAUPUNKT	094	100	102	111	114	
BRANDT	028	039	040	043	145	081
BRION VEGA	050					
BRUNS	048	050				
BSR	059	110	132			
BUSH	033	068	124	074		
CENTURY	098	101	050	079	136	
CGE	016	101	124	079	132	136
CIHAN	065					
CLARIVOX	048	116				
CONDOR	099	111				
CONTEC	087					
CONTINENTAL EDITION	028	039	040	043	145	081
CROSLEY	101	050	109			
CROWN	147					
CTC CLATRONIC	046					
DAEWOO	089					
DECCA	099	060	063	115	118	
DEGRAAF	036					
DIXI	049	090				
DRYNATRON	049					
DUAL	099	141				
DUAL-TEC	096	099	132			
DUMONT	046	050	057	073		
ELBE	016	116				
ELBIT	065					

ELCIT	046	097	103	050	109	127
	132					
ELMAN	046	132				
ELTA	090					
EMERSON	158	098	050			
ERRES	049	142				
EUROPHON	098	046	097	099	051	115
	132					
FERGUSON	146	040	041	150	057	061
	116	149				
FIDELITY	099	149				
FINLUX	034	046	053	055	057	109
	113	073	074	079		
FISHER	015	048	050	052	109	136
FORGESTONE	149					
FORMENTI	099	053	109	111	125	
FORTRESS	137					
FRABA	075					
FRONTECH	054					
FUJITSU	025					
FUNAI	054	059				
GBC	109	132				
GEC	099	060	109	115	134	088
GELOSO	103	109	132	134	090	
GOLDSTAR	092	003	017	099	049	075
	076	077	090	152		
GOODMANS	033	049	060	077		
GORENJE	066	136				
GREATZ	001	058	109	122	123	128
	129	130	134			
GRANADA	033	099	049	058	060	142
	115	125	134			
GRUNDIG	094	100	057	058	108	112
	114	082				
HANSEATIC	033	047	099	049	109	139
	111					
HANTAREX	097					
HEMMERMANN	127					
HIFIVOX	028	039	043	145	081	
HINARI	158	033	045	143	090	
HITACHI	014	033	034	036	099	145
	056	109	139	110	067	117
	132	134	084	091	081	088
HYPER	093	099				
IMPERIAL	016	101	124	079	132	133
INGELEN	001	058	109	122	128	129
	130	134				

INNO HIT	093	098	097	099	143	077
	090					
INTERFUNK	047	049	050	145	058	109
	142	123	128	129	091	
IRRADIO	093	143	053	077	090	
ITT	001	140	058	105	109	122
	123	128	148	129	130	134
	135	083	089			
JVC	033	154				
KTV	099					
KAISUI	006					
KARCHER	006					
KENDO	098					
KENNEDY	144	019	109			
KORTING	050	059	111			
KRIESLER	099	049	050	019	142	149
	078					
LENOIR	099					
LOEWE OPTA	008	097	047	049	050	115
	072					
LOGIK	118	149				
LUMA	049	120	134			
LUXOR	058	139	117	120	123	129
	135	083				
MAGNADYNE	046	097	103	050	109	115
	127	132				
MAGNAFON	046	097	099	051	053	115
MARANTZ	049					
MATSUI	158	099	106	060	118	068
	134	090				
McMICHAEL	088					
MEMOREX	090					
METZ	094	050	114	133		
MINERVA	094	100	057	058	114	
MISTRAL	149					
MITSUBISHI	033	035	047	049	050	062
	118	119	148	080	138	
MIVAR	097	099	115	077		
MULTITECH	046	099	115	136		
MURPHY	134					
MAONIS	096	144	019	110	134	
NATIONAL	042	104	109			
NEC	033	085				
NECKERMANN	099	050	139	120	136	
NEI	049					
NIKKAI	060					
NOBLEX	015					
NOBLIKO	098	046	099	053	057	
NOGAMATIC	028	039	043	145	081	
NOKIA	001	140	058	105	109	122
	123	128	148	129	130	134
	135	083	089			

NORDMENDE	028	032	039	043	145	131
	091	081				
OCEANIC	109	064	123			
ONCEAS	099					
OPTONICA	137					
ORION	000	059	118	068	127	090
OSAKI	060					
OSIO	077					
OSUME	087					
OTTO VERSAND	033	047	049	109	139	
P.T ACTTRON	065					
PAEL	099	053				
PANASONIC	030	042	095	104	107	109
	121	126				
PATHE CINEMA	099	111	116	132		
PERDIO	060					
PHILCO	016	030	101	050	109	124
	079	132	136			
PHILIPS	009	010	013	018	024	099
	049	050	019	142	148	149
	078	088				
PHOENIX	099	053	109	111	125	
PHONOLA	099	049	050	019	142	149
	078					
PIONEER	020	049	145	091		
PRANDONI-PRINCE	098	097	053	115	134	
PREMIER	124					
PRINCE	098	097	053	134		
PROTECH	049	054				
PYE	099	049	050	019	142	148
	149	078				
QUASAR	046	097	051	053	077	
QUELLE	047	099	100	049	053	055
	057	058	111	112	113	114
	118	123	073	074	128	
RADIOLA	099	049	050	019	142	149
	078					
RADIOMARELLI	046	097	103	050	109	062
	127	132				
RANK	074					
RBM	074					
REDIFFUSION	062	123	134			
REX	096	144	019	141	110	069
	134					
ROBOTRON	048	050				
RTF	048	050				
SABA	028	031	032	037	039	040
	043	097	050	145	115	120
	086	091	081			
SAISHO	158	099	118	119	068	090
SALORA	053	139	117	120	122	123
	125	128	135	083		

ENGLISH

SAMBERS	046	097	051	053	115	077
SAMPO	121					
SAMSUNG	015	026	099	054	077	136
	090	151	153			
SANYO	001	002	005	033	044	048
	060	113	118	071	054	136
SBR	049	142	148	149	088	
SCHAUB LORENZ	001	058	109	122	123	128
	129	130	134			
SCHNEIDER	096	099	049	050	052	019
	141	109	142	125	149	078
	132					
SEG	046					
SEI	158	059				
SELECO	016	096	144	019	141	110
	069	134				
SHARP	033	087	137			
Sherwood	000					
SIAREM	046	097	050	109	115	
SICATEL	116					
SIEMENS	005	094	036	100	111	114
	087					
SIERA	099	049	050	019	142	149
	078					
SILVER	054					
SINGER	016	046	050	109		
SINUDYNE	158	046	050	059	109	127
SONOKO	049	090				
SONY	146	007	027	033	038	118
STERN	096	144	019	110	069	134
TANDBERG	133					
TANDY	099	060	137			
TASHIKO	002	033				
TATUNG	099	060	063	065	115	118
TEC	096	099	132			
TELEAVIA	028	039	040	043	145	091
	081					
TELEFUNKEN	028	041	145	150	086	091
TELETECH	090					
TELEVIDEON	099	053	109	111	125	
TENSAI	049					
THOMSON	012	028	032	039	040	043
	145	091	081			
THORN-FERGUSON	014	040	041	054	150	057
	061	116	149	086		
TOCOM	029					
TOSHIBA	004	016	033	070	074	
TRANS CONTINENTS	098	097	053	134		
TRIUMPH	158					
UHER	052	111	125			
ULTRA VOX	098	046	099	050	109	120
UNIVERSUM	092	034	054	077		
UNIVOX	116					
VEGAVOX	079					
VOXSON	050	134				
WATSON	111					
WATT RADIO	046	099	051	109	116	127
WEGA	033					
WHITE WESTINGHOUSE	099	111				
YOKO	099					
ZANUSSI	096	144	019	110	069	134
ZOPPAS	096	144	019	110	134	

VCR

AKAI	042	022	052	032	033	
ALBA	008	020				
AMSTRAD	011					
ANITSCH	009					
ARC EN CIEL	042	056	052			
ARISTONA	045	031				
ASA	018					
AWIA	011	042				
BAIRD	042	033				
BAUER. BOSCH	014	043				
BLAUPUNKT	014	043	055	031	054	040
BRANDT ELECTRONIQUE	042	056	052			
BRIONVEGA	041					
BUSH	008	020				
C.EDISON	041					
CANON	014					
CAPEHART	020					
CGE	011	042	052			
CONTINENTAL EDISON	042	056	052			
CRAIG	000	013				
CURTIS MATHES	019					
DAEWOO	001	020	021			
DAYTRON	020					
DECCA	011	042				
DEGRAAF	003	006	011	045	018	
DUAL	042	052				
DUMONT	003	011	018			
DYNATECH	011					
EMERSON	002	010	011	019	025	
FERGUSON	042	059	030	052	034	036
FIDELITY	011					
FINLANDIA	003	018				
FINLUX	003	006	011	018		
FISHER	000	003	005			

FUNAI	011					
GE	019					
GENERAL	014					
GOLDSTAR	004	062				
GOODMANS	008	011	046			
GRAETZ	041	042	056	050	052	038
GRANADA	003	005	018			
GRUNDIG	014	043	018	055	031	053
	054					
HANSEATIC	043					
HARMAN-KARDON	004					
HIFIVOX	042	056	052			
HINARI	002	008	024	027		
HITACHI	006	007	011	042	057	
IMPERIAL	011					
INGELEN	042	056	052	038		
INGERSOL	027					
ITT	005	041	042	056	050	052
	033	038				
JENSEN	042					
JVC	042	056	060	030	052	063
KENWOOD	005	042	060			
KRIESLER	045	031				
KUBA	043					
LLOYD	011					
LOEWE OPTA	014	018	029	031		
LOGIK	008	027				
LUXOR	033	038				
MAGNADYNE	041					
MAGNASONIC	038					
MAGNAVOX	019					
MARANTZ	004	014	046	018	031	
MATUI	010	025	027			
MEMOREX	000	003	005	011	045	
METZ	014	043	031	054	037	
MGA	017					
MINERVA	055	054				
MINOLTA	006	007				
MITSUBISHI	060	017	049			
MTC	011	013				
MULTITECH	008	011				
MURPHY	011					
NAONIS	042	056	052			
NATIONAL	040					
NEC	004	042	060	052		
NECKERMANN	002	041	014	042	052	
NOGAMATIC	042	056	052			
NOKIA	003	005	041	042	056	050
	052	033	038			
NORDMENDE	039	042	056	052	053	035
OPTONICA	045	046				
ORION	002	010	025	027		

OSAKI	011					
OTTO VERAND	043					
P. CINEMA	014					
PALLADIUM	041	014				
PANASONIC	023	051	040			
PATHE MARCONI	042	056	052			
PENTAX	006	007				
PERDIO	011					
PHILIPS	012	014	045	046	018	029
	031					
PHONOLA	014	045	018	029	031	
PIONEER	060					
PORTLAND	020					
PROLINE	011					
PYE	014	045	018	029	031	
QUARTZ	005					
QUELLE	002	044	054			
RADIOLA	045	031				
RADIOMARELLI	041					
RCA	019					
REALISTIC	000	003	005	011	013	045
	046					
REX	042	056	052			
SABA	039	042	056	052	035	
SAISHO	002	010	025	027		
SALORA	005	017				
SAMSUNG	013	019	032	061		
SANSUI	042	060				
SANYO	000	003	005	025	038	
SBR	018	029				
SCHAUB LORENZ	041	042	056	050	052	038
SCHNEIDER	008	011	045	031		
SEI-SINUDYNE	027					
SELECO	042	056	052			
SENTRA	020					
SHARP	045	046	105	048		
SHINTOM	008					
SIEMENS	014	043	055	031	054	038
SIERA	045	031				
SINUDYNE	027					
SONY	044	015	016	026	028	
STERN	042	056	052			
STS	006					
SUNKAI	025					
SYLVANIA	011	017				
SYMPHONIC	011	017				
TASHIKO	011					
TATUNG	011	042				
TEAC	011	042				
TEKNIKA	011					
TELEAVIA	042	056	052			
TELEFUNKEN	042	056	052			
TENOSAL	008					

THOMSON	042	056	052			
THORN-FERGUSON	039	042	059	030	052	034
	036					
TOSHIBA	001	042	056	017	058	052
TOTELEVISION	013					
UHER	042					
ULTRA VOX	041					
UNITECH	013					
UNIVERSUM	041	014	043			
URANYA	041					
VECTOR	004					
VICTOR	042	060				
VIDITAL	041					
WESTING HOUSE	041					
WARDS	019					
YAMAHA	004	042				
ZANUSSI	042	056	052			
ZENDER	052					
ZOPPAS	042	056				

DVD

DENON	017					
GE	003	004				
JVC	007					
LG	011	010				
MAGNAVOX	019					
MITSUBISHI	001					
ONKYO	009					
PANASONIC	015					
PHILIPS	019					
PIONEER	002	023				
PROSCAN	003	004				
RCA	003	004				
SAMSUNG	016	008				
SHERWOOD	000	010	011	012	013	014
	022	020	021			
SONY	005					
THOMSON	003	004				
TOSHIBA	006					
VIETA	014					
YAMAHA	019					
ZENITH	011	010				

CBL

ABC	002	003	009	030		
	007	006	008			
Allegro	018	021				
Archer	018	026				
Bell&Howell	009					
Century	018					
Citizen	018	021				
Comtronics	014					
Contec	011					
Easten	001					
Emerson	026					
Everquest	010	014				
Focus	022					
Garrard	018					
Gemini	010					
General Instrument	033	276	006	034		
GoldStar	017	040				
Goodmind	026					
Hamlin	012	020	004	013		
Hitachi	006					
Hytex	007					
Jasco	010	018	021			
Jerrold	002	007	033	032	009	010
	006	034				
Movie Time	015					
NSC	015					
Oak	011					
Optimus	031					
Panasonic	016	031				
Philips	018					
Pioneer	017	025				
Popular Mechanics	022					
RCA	031					
Radio Shack	010	021	026	028		
Recoton	022					
Regal	012	020				
Regency	001					
Rembrandt	006					
Sherwood	000					
SL Marx	014					
Smasung	017	014				
Scientific Atlanta	003	023	030	027		
Signal	010	014				
Signature	006					
Sprucer	031					
Starcom	002	010				

Stargate	010	014	026		
Starquest	010				
TV86	015				
Teleview	014				
Tocom	007	008			
Tusa	010				
Unika	018				
United Artists	007				
Universal	153	019			
Viewstar	015				
Zenith	024				
Zentek	022				

SAT

ALBA	030				
AMSTRAD	008	019	027		
ARCON	021				
ARISTONA	016				
ASTRA	028				
BLAUPUNKT	033				
BUSH	016				
CH.MASTER	030				
CITY COM	005				
DDC	030				
DYNASAT	005				
ECHOSTAR	002	009	032	020	
EMME ESSE	005				
FAIT	005				
FERGUSON	014	041	016	017	018
FINLUX	006	007	013		
FRACARRO	005				
FTE	022				
GOLDSTAR	004	021			
GRAETZ	026	037			
GROTHUSEN	004				
GRUNDIG	033	016	018	036	
HINARI	030				
HIRSCHMANN	003	006			
HITACHI	013				
INGELEN	026	037			
ITT	034				
ITT-NOKIA	032	018	026	037	
JERROLD	038	014			
KATHREIN	005	022	023		
KOSMOS	004				
KRIESLER	016				
LENCO	004	021			
LUXOR	026	037			

MAGAI	022					
MARANTZ	012					
MASPRO	016					
METZ	036					
MINERVA	036					
MULTISTAR	022					
MURATO	004					
NEC	040					
NEIRU	021					
NOKIA	026	037				
NORSAT	015					
PACE	001	042	016	017	018	044
PANASONIC	032					
PHILIPS	003	011	012	029		
PHONOLA	016					
PROSAT	030					
PYE	016					
QUADRAL	030					
QUELLE	036					
RADIOLA	016					
REDIFFUSION	015					
SABA	035					
SALORA	026					
SAMSUNG	003	022				
SAT PARTNER	004					
SATPORTNER	021					
SCHAUB LORENZ	026	037				
SCHNEIDER	005	016				
SHERWOOD	000					
SIEMENS	033	036				
SIERA	016					
SILVA	004	021				
SKY	039					
STARCOM	038					
STARSAT	022					
TECHNISAT	003					
TELEFUNKEN	025					
TELESYSTEM	005					
THORN-FERGUSON	010	014	041	016	017	018
	043					
TRIAD	004					
UNIDEN	022					
UNITED CABLE	038					
VTECHNOLOGY	004					
VORTEC	003	024	025			
ZENDER	022					

ENGLISH

CD

ADCOM	021					
AIWA	045	039	022			
AKAI	046					
AUDIO	016					
ARC EN CIEL	036	014	027	030	031	018
	230					
DENON	054					
FISHER	006					
H/K	017	012	047	016		
JVC	028	034	001			
KENWOOD	003	020	010	029	006	
MARANTZ	015	014				
MONDIAL	033					
NAD	048	002	042			
NAKAMICHI	049					
NIKKO	016					
ONKYI	013	037	011	021	038	
PANASONIC	051	052				
PHILPS	014					
PIONEER	005	008	041			
RCA	007	009				
REALISTIC	045					
SANSUI	040					
SHARP	019	053				
SHERWOOD	000	035	023	019	056	057
	058					
SONY	050	024	025	026		
TEAC	055	032				
TECHNICS	051	004	052			
VICTOR	001					
YAMAHA	044	043	016			

AUX-TAPE/MD

SHERWOOD	000(for tape deck)	
	015	016(for MD recorder)

AUX-LD

DAEWOO	002	
DENON	012	
GOLDSTAR	004	
KENWOOD	003	
MAGNAVOX	010	
OPTIMUS	007	
PANASONIC	013	
PHILIPS	010	
POINNEER	000	009
RCA	006	
REALISTIC	007	
SAMSUNG	001	005
SHARP	003	011
TECHINCS	013	
TOSHIBA	003	
YAMAHA	008	